Graduate School of Business

Behavioral Intention to Use Forensic Accounting Services for the Detection and Prevention of Fraud by Large Malaysian Companies

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DECLARATION

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

Signature: …….

Gunasegaran Muthusamy

31 January 2011.

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DEDICATION

This thesis is dedicated in memory of my late father, Mr Muthusamy Nallappan who always believed in me. His strength and vision guided me throughout my doctoral study.

ABSTRACT

This study investigates the factors that influence the behavioral intention to use forensic accounting services in the detection and prevention of fraud by large Malaysian companies. The research was motivated by the underutilization of forensic accounting services, an essential and effective fraud detection and prevention method. The low usage of this service by companies in Malaysia and worldwide has been pointed out as a contributing factor in the escalation of fraud. The organizational intention to use professional services including forensic accounting services have not been researched previously.

The research adopts a multi-phased mixed method research approach. In the first phase, the literature review identified the Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Health Belief Model (HBM) and Hierarchy of Effects Model (HOE) as relevant to the study of behavioral intention. The four theories were then cross-examined to conceptualize key constructs relevant to this study to form the initial model. The second phase consist of qualitative data collection from ten large Malaysian companies' Chief Financial Officers (CFO). The semi-structured interview data is analyzed via a two stage content analysis technique and the initial research model is amended based on the findings. Altogether, eighteen constructs were identified and categorized into seven factors. In the ensuing quantitative phase, a survey instrument, developed to test the model, is utilized in a pilot study on 30 CFOs from large Malaysian companies. The instrument is then refined and administered in a national survey which resulted in 305 useable responses.

Quantitative data is analyzed using Partial Least Square based Structural Equation Modeling. The results confirm the significant positive influence of attitude, organizational ethical climate, stakeholder pressure, perceived severity of fraud, and the negative influence of financial costs on the behavioral intention to use forensic accounting services. In addition, the moderating effect of organizational size and organizational type on the relationship between behavioral intention and its direct antecedents is supported.

This study has both theoretical and practical contributions. The theoretical contribution lies in the integrative conceptual model that has successfully incorporated constructs from the TRA, TPB, HBM, and HOE in investigating the behavioral intention to use forensic accounting services. The organizational intention to use professional services including forensic accounting services have not been investigated previously. This study is also the first ethical decision-making model to incorporate threat perceptions from HBM and awareness from HOE. Finally, perceived risks and perceived benefits from HBM, previously thought to be equivalent to attitude from TPB, have instead been established as significant direct antecedents of attitude.

Practically, the findings of this study enables the Malaysian government, professional bodies, company board of directors, organizational stakeholders, and accounting firms to improve their understanding on why organizations resist the use of forensic accounting services in the detection and prevention of fraud. It will also allow them to devise practical methods and promotion strategies to increase the awareness, acceptance, and ultimately the use of forensic accounting services in the fight against fraud.

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CHAPTER 1
INTRODUCTION

1.1 Background

Fraud is a prevailing corporate problem, which can affect organizations regardless of company size, industry sector, and time zone (Peterson and Zikmund 2004; Adams et al. 2006; PricewaterhouseCoopers 2007a). The millennium began with a number of accounting scandals that reverberated throughout the world (Ball 2009). The epicenter was in the United States, highlighted by the downfall of Enron and WorldCom. Enron's shares dropped from $90 to $0.25 in the short space of 14 months, shareholders and debt holders lost tens and billions of dollars whilst 20,000 employees lost their retirement savings (Crumbley and Apostolou 2002).The demise of WorldCom, which holds the record for the largest accounting fraud and bankruptcy in history, caused the loss of hundreds of billions of dollars in stock value and shook the foundations of the Wall Street (Crumbley and Apostolou 2005). The collateral damages inevitably led to employees who lost their livelihood, depleted economy of the local community, and the depression of the moral climate of society (Zahra, Priem, and Rasheed 2007).

The financial scandals of large Malaysian corporations were equally devastating and mirrored the global calamities. Transmile Group Bhd was charged with collusive fraud when it overstated its profits by a massive RM622 million for the years 2004 to 2006 (Fong 2007). The Malaysian Securities Commission charged two directors of Cold Storage (Malaysia) Bhd. for securities fraud and criminal breach of trust involving RM185 million of company funds (Securities Commission Malaysia 2005). Megan Media Holdings Bhd had to deal with deliberate falsification of financial statements that led to its shares plunging to 6 cents a share in July 2007

(Khoo 2007). Inevitably, the company stated a net loss of RM1.27 billion for the 2007 financial year.

The force of the global economic downturn in 2008 has further exacerbated the threat of fraud. The consensus among experts is that incidents of fraud escalate in times of economic downward spiral (Association of Certified Fraud Examiners 2009; BDO Stoy Hayward and the University of Portsmouth 2009; PricewaterhouseCoopers 2009, International Operation Group 2009). A recent poll conducted by a leading auditing firm shows that nearly two-thirds of executives believe accounting fraud will increase over the next two years (Deloitte 2008). The statistic from Malaysia is similar, whereby 65% agree that incidences of fraud will mount in this global financial crisis. They attribute this increase to the financial pressures of the economic slump, specifically lower or non-existent raises and bonuses, reduced job security, and deflated morale. In addition, the Deloitte Survey press release on June 4, 2009, reported that given the general agreement that fraud is escalating, it was alarming that only 30% of respondents have established adequate protocols to overcome this problem.

The rapid advancement in modern technology has increased the complexity of current business transactions and information systems. Hence, the present era has to deal with the ever-changing landscape of fraud that has spawned vast new innovative pathways of opportunities for the often sophisticated, well educated, and skillful fraudster (PricewaterhouseCoopers 2009). Moreover, according to Wells (2004), fraud has become the 21st century's most lucrative crime due to minimal risk of apprehension and even lesser risk of punishment. The chances of actual prosecution for corporate fraud in the U.S. according to the FBI are 20,000 to 1 (Lieb 2002). A typical gun yielding bank robber could net less than $5000 but will face at least five years of imprisonment, yet, the famous Michael Milkin who embezzled $1.2 billion through junk bonds paid a fine of $600 million and spent only twenty months in jail (Wells 2004).

1.1.1 Prevalence of Fraud

There seems to be no abatement in the dramatic increase of fraud cases worldwide. A number of surveys support this view and reiterate that fraud is a growing phenomenon that is far more extensive than previously envisioned. The Global Economic Crime Survey (PricewaterhouseCoopers 2007a) on 5248 companies in 40 countries exposed that 43% of these companies have been subject to one or more significant economic crimes in the duration of the surveyed two years. Global Fraud Report by Kroll (2008) revealed that 80% of the firms surveyed have suffered some form of corporate fraud from 2005 to 2007. Nearly 50% of the companies ranked themselves as at least moderately vulnerable to a very wide range of fraud threats. Furthermore, the report highlighted that 31% of the respondents affirmed that their company's exposure to fraud has increased due to the advancement in information technology.

In Malaysia, testaments from fraud survey reports and police statistics reveal that the threat of fraud is escalating significantly. The executive summary of the KPMG (2009) Fraud Survey Report declared 66% of respondents believed that fraud is a major problem for Malaysian businesses. Nearly half of the companies or 49% acknowledged experiencing fraud in their organization during the survey period. The survey also noted that a substantial 89% of the respondents assumed fraud would be on the increase as a result of fragile economic conditions. Furthermore, the report indicated that the likelihood of fraud in larger companies is the highest at 75%. According to the PricewaterhouseCoopers (2007b) 4th biennial Global Economic Crime Survey, the number of Malaysian companies subject to economic crime has shown a conspicuous 108% increase since 2005. In addition, the likelihood of fraud in large Malaysian companies is higher with an average of twelve incidents per company within the surveyed two years (PricewaterhouseCoopers 2006a).

However, the Association of Certified Fraud Examiners (ACFE) Malaysia as accounted in the Daily Express (15 January, 2008) claimed that fraud figures may only be the tip of the iceberg because annually only 20% of fraud cases are reported. Davia (2000) stated that only 20% of fraud have been exposed and is in the public domain. He believed 40% of fraud have been discovered by companies but not

publicized and another 40% have occurred but not been detected. These statistics correlate to the Ernst & Young (2003) report titled "Fraud: The Unmanaged Risk" that asserts only 20% of fraud are exposed to the public.

1.1.2 Cost of Fraud

1.1.2.1. Direct Financial Costs

PricewaterhouseCoopers (2007a) reported that the average loss per company from fraud over two years has increased from US $1,732,253 in 2005 to US $2,420,700 in 2007. However, the survey believed that this figure is an undervaluation and the real overall loss would be US $3,242,095 on average worldwide per company. The total estimated loss reported by the respondents over two years were in excess of US $4.2 billion. Global Fraud Report by Kroll (2008) claimed that during 2005 to 2007 the average damage from corporate fraud among large companies was more than $20 million, with about 10% of them losing more than $100 million each.

The 2008 ACFE report stated that approximately $994 billion would be lost in 2008 from occupational fraud and abuse in U.S. (Association of Certified Fraud Examiners 2008). This sum is certainly a massive increase from the $652 billion lost in 2006 and $660 lost in 2004. The median loss from occupational fraud in this study was $175 000 and more than one-fourth of the fraud caused at least $1 million in losses each. In U.K., the total reported fraud has increased 189% from £411 million in 2003 to £1.19 billion in 2008 (BDO Stoy Hayward and the University of Portsmouth 2009). However, according to the Report for the Association of Chief Police Oficers' Economic Crime Portfolio (Levi et al. 2007) the statistics are incrementally higher than this. This report asserted that the conservative direct estimate from fraud of all types were at least £12.98 billion in 2005. The Australian Institute of Criminology estimated direct financial loss of $8.52 billion a year due to fraud and this amount is a substantial 40% of the total cost of all crime in Australia (Rollings 2008).

In Malaysia, data collected from the KPMG Fraud Survey 2004 Report (2005) revealed that 36% of companies suffered total losses of RM10,001 to RM100,000 to fraud, 25% incurred losses between RM100,000 to RM1 million whilst 17% endured

losses in excess of RM1 million. According to the Global Economic Crime Survey (PricewaterhouseCoopers 2007b), the average direct financial loss to Malaysian companies from fraud in the surveyed two years rose by more than 11 times from USD $173,303 in 2005 to USD $2,158,827 in 2007. The *Sun* (March 15, 2006) detailed that 6,422 cases of criminal breach of trust, cheating and forgery were reported to the Malaysian police in 2005 and from these cases, the criminals have amassed RM784.9 million.

The consequence of financial loss is tangible because of the immediate direct effect on the company's income. This is because fraud would reduce the net income of the victimized company on a dollar-to-dollar basis (W. S. Albrecht and C. C. Albrecht 2002). For instance, a company with a $10,000 fraud loss and a profit margin of 10% has to generate sales of $100,000 to restore net income to its pre-fraud stage. This example illustrates the crushing impact of the loss and the extreme difficulty of bouncing back from the direct financial cost of fraud.

1.1.2.2. Management Costs

The high figures quoted by the fraud surveys are fundamentally direct losses due to actual monies stolen or assets misappropriated. However, according to the PricewaterhouseCoopers (2007a) 4th Global Economic Crime Survey, companies also have to deal with management costs, which were estimated, at an average of $550,356 over the course of the surveyed two years. These management costs include distracted management time due to the diversion of focus to fraud, dealing with litigation issues, managing public and investor relations and complying with renewed regulatory oversight and demands (PricewaterhouseCoopers 2007b). Furthermore, management also has to bear the induced cost of higher insurance protection (Glover and Aono 1995; PricewaterhouseCoopers 2006b). The siphoning away of valuable resources of management time and money would impair efficiency, productivity, innovation and eventually limit the company's impetus to manage, grow, and succeed (Glover and Aono 1995).

1.1.2.3. Collateral Costs

Unfortunately, according to PricewaterhouseCoopers (2007a) the above mentioned financial and management costs are only a small portion of a larger picture of fraud consequences. The more significant and crippling costs of fraud are the collateral damages to the company (PricewaterhouseCoopers 2007a). The PricewaterhouseCoopers (2007b) fraud survey conducted in Malaysia attested that over 81% of the respondents confirmed fraud caused significant collateral damage to their company. In addition, the level of collateral damage is further compounded when a member of the management team is involved. This is because the higher the position of the fraudster, the greater the trust that is conferred on them, and any breach of that trust would have a crushing effect on other employees and stakeholders (PricewaterhouseCoopers 2007b). A report to the Institute of Fraud Prevention (Tillman and Indergaard 2007) concluded that fraud led by the top executives of the company is the most costly. The 'Profile of a fraudster survey' by KPMG (2007) revealed that 86% of fraud involves management. In addition, the Association of Certified Fraud Examiners (2008) disclosed that 60.3% of fraudsters are managers and executives of companies. Moreover, in Malaysia, although the ratio of management to employee is very low, an alarming 47% of fraudsters are from management (PricewaterhouseCoopers 2007b).

PricewaterhouseCoopers (2007a) have reported reputation damage as the most significant collateral damage with 82% of respondents attesting to this. Damage to reputation would include damage to the company's brand and customers' trust (Ernst & Young 2003; Peterson and Zikmund 2004; PricewaterhouseCoopers 2007b). Zahra, Priem, and Rasheed (2007) agreed that it would be a struggle for companies to retrieve their reputation and recapture public support once they become a victim of fraud. The impact of reputational damage would extend to impaired external business relationships for example with suppliers and investors (PricewaterhouseCoopers 2007b). Furthermore, the company's credit ratings would also be downgraded (PricewaterhouseCoopers 2006b).

The next non-quantifiable consequence of fraud is damage to staff morale affirmed by 91% of the PricewaterhouseCoopers (2007a) Global Economic Crime Report

survey respondents. Adversely affected staff morale would in due course lead to the loss of the company's productivity (Peterson and Zikmund 2004). M. S. Baucus and D. A. Baucus (1997) conducted an empirical study on corporate illegality effects. The results confirmed that organizations experience significantly lower accounting returns over five years and slower growth in the third through fifth year after convictions.

Damage to shareholders' trust and drop in share prices affect 87% of the victimized companies surveyed by the Global Fraud Report (PricewaterhouseCoopers 2007a). Once fraud becomes public knowledge, loss of market confidence instantly plummets the stock value of the company (PricewaterhouseCoopers 2007a; Zahra, Priem, and Rasheed 2007; Kedia and Philippon 2009). The resultant effect can often be a shareholders suit, civil fines and may even lead to bankruptcy (Beasley, Carcello, and Hermanson 2001). The corporate scandals that trailed the Enron bankruptcy and the demise of WorldCom are testaments to this (Ramaswamy 2005).

The above discussions were on the consequences of fraud to the victimized company but the repercussions of fraud do not stop there. Fraud costs can also be felt by the company's employees, shareholders, debt holders, local communities, government, and by the society. Employees of the company are the hardest hit because they can lose their job and retirement savings that are often tied up in company stocks (Bower and Gilson 2003; Zahra, Priem, and Rasheed 2007; McGrath 2008). According to Kedia and Philippon (2009), publicly traded companies that restated their earnings in 2000 and 2001, destroyed between 250,000 and 600,000 jobs. Furthermore, victimized employees' reputation and resumes may be tainted and they cannot find employment elsewhere. For example, after the crash of Bank of Credit and Commerce International (BCCI), the company's former managers could not find jobs in the banking industry (Zahra, Priem, and Rasheed 2007). The aftermath is that many of these managers will not recover professionally from their tarnished image. The invariable victims are also the families of the employees whose source of livelihood are at stake.

Shareholders have to bear the costs of plunging share prices (Price and Norris 2009). They may lose their life savings and inevitably never recover financially.

Bondholders suffer when bonds lose value due to the depreciation of the company's credit ratings (Zahra, Priem, and Rasheed 2007; Price and Norris 2009). Furthermore, banks and other creditors cannot recover money loaned against overvalued or nonexistent collateral or inflated cash projections. Consequently, the bank's share prices dip and invariably the shareholders of the banks have to pick up the substantial tab (Zahra, Priem, and Rasheed 2007). Ultimately, these collateral costs erode public confidence in the viability of investing in financial markets (McGrath 2008).

When fraud hits a large company, the local community where the company is located is also affected. Some of the ripple effects are rise in unemployment, loss of endowment given to schools and arts, depleted stock portfolios, and debilitated secondary businesses such as restaurants and transport providers (Zahra, Priem, and Rasheed 2007). For example, the demise of WorldCom in Clinton left the small town in an aftermath of massive layoffs and worthless stocks. Many affiliated secondary businesses suffered significant losses of revenues and could not survive without the company that put it on the map.

The monetary impact of fraud on the country's economy parallels its effect on an organization. The annual expenditure to combat fraud takes out a huge portion of the government's budget. For example, in the U.S. the Obama administration announced to increase the Securities and Exchange Commission's (SEC) $906 million budget for 2008 by 13% for fiscal 2010 (Younglai 2009). The reason given was to help the SEC increase vigilance on markets and detect fraud. Therefore, essential funds needed for educational and health programs have to be diverted to fight fraud (Levi and Burrows 2008). In addition, this huge cost of fraud has to be absorbed by the consumer through increased price of goods and services (Fraud Panel Advisory 2006). Moreover, the country's economy slows down because fraud losses are siphoned away from circulating in the mainstream economy. Eventually, fraud leads to the destruction of social capital because many small and medium firms may want to be de-listed from the stock exchanges whilst at the same time private firms hesitate to go public (Glover and Aono 1995).

Ultimately, the cost of fraud is the depression of the moral fiber of the country (Glover and Aono 1995; Zahra, Priem, and Rasheed 2007). According to Glover and Aono (1995), even sociologists believed the pervasive attitude caused by fraud "if others can do it, so can I" is the impetus that perpetuates further fraud. Furthermore, the authors believe that there is a corrosion of faith in the integrity of senior managers, free market system, and even leaders of political institutions. The conflicting message sent by the high status of these offenders erodes societal value systems and compromises the integrity of the nation.

1.2 Forensic Accounting Services in Fraud Prevention and Detection

Brown, Aiken, and Visser (2007) believed fraud cost is one of the 'low hanging fruit' that should be targeted as part of cost reduction programs especially during slow economic cycles. Furthermore, Schnatterly's (2003) empirical research affirmed that companies that could detect and prevent fraud have increased firm value through potential competitive advantage and enhanced financial returns. The relatively low investment of combating fraud entails a huge cost benefit opportunity (PricewaterhouseCoopers 2009). The expense of timely detection and prevention of fraud is comparatively low to the massive loss of revenues and effort required to recoup lost funds (ACL 2005). In addition, the demands of investing public and regulatory environment have increased the urgency to fight fraud (AICPA Forensic and Litigation Services Committee and Fraud Task Force 2004).

Based on this evidence, it will be crucial for companies to escalate their endeavor in both the detection and prevention of fraud. Unfortunately, the pervasiveness and seriousness of fraud cannot be overcome with the present dated methods for fraud detection and prevention (Wells 2004). The KPMG (2009) Fraud Survey Report revealed that only 54% of respondents believed that their organizations' anti-fraud policies, procedures, and controls are adequate to prevent, detect, and respond to fraud incidents. Furthermore, only 47% of the respondents conducted annual review of their anti-fraud programs. The 2008 Report to the Nation (Association of Certified

Fraud Examiners 2008) revealed that a massive 66% of occupational fraud was detected by tips or by 'accident'. In addition, the PricewaterhouseCoopers 2009 Global Economic Crime Survey (2009) highlighted the worrying fact that current fraud controls set up by Malaysian companies either do not relate to or are ineffective in fraud detection. The survey reported that only 50% of fraud is detected by mechanisms set up by management whilst the rest is through 'accident'. The survey conceded that management might actually detect a significantly higher number of fraud incidences with mechanisms that are more effective.

Evidence from businesses, governments, regulatory authorities, and courts indicate that a higher level of fraud expertise is vital in current complicated financial transactions and systems (Rezaee, Crumbley, and Elmore 2005). External or internal auditors conduct financial audit and their primary job is to provide reasonable assurance that financial statements are prepared in accordance with audit standards (W.S. Albrecht, C. A. Albrecht and C. C. Albrecht 2008; Malaysian Institute of Accountants 2009). They are not specifically looking for fraud but instead engaged to issue an opinion on the overall financial statements (W.S. Albrecht, C. A. Albrecht and C. C. Albrecht 2008). This limitation of financial auditors in fraud detection and investigation necessitated the need for forensic accountants in the crusade against financial deception (Ramaswamy 2005; Rezaee, Crumbley, and Elmore 2005; Chary and Kiranmai 2006).

Forensic accountants perform fraud audits and their main objective is to detect and investigate suspicions of fraud (Singleton et al. 2006). The AICPA Forensic and Litigation Services Committee and Fraud Task Force (2004) believed that forensic accountants are the 'vital new allies' in the fight against fraud and the use of forensic accounting procedures should be increased. At present, to meet the growing needs of organizations, accounting firms provide a broad range of forensic accounting services to facilitate fraud mitigation in organizations (Zhang 2005). These services utilize specialized forensic techniques and skills for the detection, investigation, and prevention of fraud (L. E. Heitger and D. L. Heitger 2008; Pricewaterhouse 2008).

According to Smieliauskas (2006), in order to meet the rapidly changing expectations of society, forensic accounting should be the fundamental tenet of both

accounting and auditing standards. In the U.K., the National Fraud Strategic Authority (2009) asserted that forensic accountants have in-depth expertise of emerging fraud threats. Crumbley and Apostolou (2005) acknowledged the expertise of forensic accountants who have single-minded focus on the detection and deterrence of fraud. They believed that the role of a forensic investigation can either be reactive, to investigate suspected fraud or proactive, to deter fraud from occurring.

d'Ath (2009, 12) explained that the rapid growth in forensic accounting is "due to:

- the increased complexity of accountancy and commerce, reflecting the heightened complexity of society in general
- technological advances
- a more litigious environment and a rise in statutory and regulatory requirements for businesses
- the proliferation and mounting sophistication of commercial crime, and the corresponding deepening of public concern about this
- large, well-publicized business failures, a loss of public confidence in financial statements and the audit expectation gap
- globalization
- changes in the economy, recessions and an escalation of emphasis by business on cost reduction."

1.2.1 Forensic Accounting Services in Fraud Prevention

Fraud prevention is the most competent and efficient approach needed to deal with the problem of fraud (Bologna and Lindquist 1995; Chartered Institute of Management Accountants 2009). Fraud experts recommend that the most cost effective way to fight fraud is to deter it from happening through 'a perception of detection' and using forensic accounting services is the best method of enhancing this perception (Peterson and Zikmund 2004; Kranacher 2006). Wells (2004) reiterates that the mere presence of anti-fraud specialists would have a significant effect on increasing the perception that any illegality will be detected. This analogy is similar to the criminologist's proven method of increasing vigilance to prevent crime before it occurs as the most effective crime deterrent (Wells 2004). Adams et

al. (2006) claimed that fraud prevention is an investment no company can afford to forgo. He suggested the need for an independent third party such as forensic accountants to gauge the accurate scenario of the company's existing fraud risks. He also emphasized the role of forensic accountants in the design, implementation, and monitoring stages of a recommended fraud prevention methodology.

Fraud risk assessment refers to the systems and processes utilized to identify an organization's exposure to fraud risks (KPMG 2009). This is an aspect of fraud prevention program, which requires the expertise of a forensic accountant. According to Lister (2007), the anti-fraud professional provides an additional layer of skepticism and objectivity to the assessment whereas, internal employee's maybe too involved and rely too much on existing controls. A recent joint report on managing the risk of fraud by The Institute of Internal Auditors, The American Institute of Certified Public Accountants, and Association of Certified Fraud Examiners (2008) recommends the use of external consultants with forensic skills and expertise to be part of the risk assessment team.

The 4th biennial Global Economic Crime Survey (PricewaterhouseCoopers 2007a) reported that strong fraud risk management could help in the prevention of fraud by laying out the foundation of a corporate culture based on ethics. The report emphasized that ethical culture is the foundation that provides the best protection against economic crime being perpetuated. This parallels Ramaswamy's (2005) call for a cohesive policy of ethical behavior, which she said could be accomplished with the help of forensic accountants. She also argued that forensic accountants know the most effective method of fraud prevention and they should be a key component of the governance committee to develop a consistent system of corporate governance and interweave this into the internal control system.

1.2.2 Forensic Accounting Services in Fraud Detection

The role of the financial auditor is to obtain 'reasonable assurance', not absolute assurance that financial statements are free of material misstatements (Malaysian Institute of Accountants 2009). However, the debate on the constitution of

'reasonable assurance' has been inconclusive (Harrington 2003; Rezaee 2004; Public Company Accounting Oversight Board 2005). Moreover, extensive empirical studies have revealed that financial report users still consider that the detection of abnormality is a primary audit intention and that auditors are accountable for detecting all irregularities (Lee, Ali, and Gloeck 2008). This is a widespread misconception and the root of audit expectation gap between auditors and financial report users in terms of the actual duties of auditors. Furthermore, the devastating debacles of numerous accounting scandals exacerbated by the demise of Arthur Andersen have further undermined public confidence in the credibility of the accounting profession (Zhang 2005).

The consensus among experts is that the dismal accomplishment record of financial audits to detect fraud is because they simply do not have the capability to do so (Singleton et al. 2006; T. W. Singleton and A. J. Singleton 2007; W. S. Albrecht, C. Albrecht, and C. C. Albrecht 2008). Therefore, according to AICPA Forensic and Litigation Services Committee and Fraud Task Force (2004), extensive forensic procedures have to be included in audits to bridge this expectation gap. W. S. Albrecht, C. Albrecht, and C. C. Albrecht (2008) reiterated that a 'reasonable assurance' by auditors is only achievable by utilizing fraud audits rather than financial audits. In addition, at the third Global Public Policy Symposium, a discussion paper prepared by the CEO's of the six largest audit firms in the world recommend that the only solution to mitigate the significant expectation gap and improve fraud detection is through forensic audits (DiPiazza et al. 2006).

Ramaswamy (2007) argued that internal or external auditors can no longer safeguard a company from fraud; instead, a new category of accountant specifically the forensic accountant is necessary for this purpose. Auditors are not trained to think like forensic accountants but unfortunately, they are called upon to use a set of forensic skills that they have not acquired (Wolosky 2004). T. W. Singleton and A. J. Singleton (2007) emphasized that it is unreasonable to rely on financial auditors to detect any fraud because they lack the intuition, experience and training vital to fraud auditing. Furthermore, financial audits cannot be relied upon to detect immaterial frauds and when controls are subject to management override and collusive manipulations (Singleton et al. 2006; Pearson and Singleton 2008).

Harris and Brown (2000) affirmed that the skills of a forensic accountant far exceed those of a financial auditor. Christensen, Byington, and Blalock (2005) argued that forensic accountants have both the quantitative skills in researching numbers to uncover fraud and qualitative skills to determine the weaknesses of internal control systems. Furthermore, the forensic accountant has a mindset that takes a more active, and skeptical approach towards fraud (Crumbley and Apostolou 2002) and is more interested in exposing fraud compared to financial auditors (Christensen, Byington, and Blalock 2005; Apostolou and Crumbley 2008). In addition, Ramaswamy (2005) believed that forensic accountants have the expertise in untangling complicated accounting maneuvers that misrepresent financial statements. Moreover, empirical evidence from a study by Boritz, Kotchetova, and Robinson (2008) confirmed that forensic accountants could detect significantly higher number of fraud than financial auditors.

Srivastava, Mock, and Turner (2003) in their empirical study found that forensic audit procedures significantly lowered fraud risks. Furthermore, research has proven that proactive forensic data analysis using computer based sophisticated analytical tests can detect fraud that may remain unnoticed for years (Brown, Aiken, and Visser 2007). Even the most sophisticated fraud leaves traces. However, the evidence is buried in mountains of corporate data across various systems. Therefore, the best method to expose the anomalies is to use equally sophisticated approaches such as forensic data mining (Ernst & Young 2009). Jans, Lybaert, and Vanhoof (2009) conducted a comprehensive investigation on both academic literature and present business practices to provide a pivotal framework that could be utilized to reduce internal fraud risk. The core of this framework is the forensic approach of data mining. According to Jans, Lybaert, and Vanhoof (2007), data mining for fraud detection could lead to improvement of existing internal control systems.

In addition, forensic accountants can help organizations in its quest to meet with the myriad requirements of professional and government regulations such as the Statement on Auditing Standards (SAS) 99 and the Sarbanes-Oxley Act in the U.S. (Sacks 2004). The newly formulated SAS 99 expands the auditors' responsibility for fraud detection and requires auditors approach each audit with increased professional skepticism (IOMA 2004). Many of the suggested procedures in SAS No. 99 involve

methods and techniques of evidence collection that are forensic in nature (AICPA 2004). Moreover, it states specifically that an auditor may respond to an identified risk by assigning a forensic specialist (Sacks 2004). Additionally, to meet the requirements of Sarbanes-Oxley Act, a company should seek forensic accountants to aid in fraud investigations, designing and implementing fraud detection programs, and developing fraud prevention policies (Colbert and Meany 2006).

In the U.S., the need for forensic accountants has risen tremendously and supply could not catch up with demand (L. E. Heitger and D. L. Heitger 2008). The projected growth of this field is 25% in the next ten years (Kellog 2008). In Malaysia, Mansor and Salim (1999) identified forensic accounting services as an emerging field that could bridge the expectation gap between auditors and company owners. However, nearly ten years later, Lee, Ali, and Gloeck (2008) in their empirical research on Malaysian companies reveal an increasingly widening expectation gap. Moreover, Ibrahim and Abdullah (2007) in their study claimed that forensic accounting in Malaysia is still in its infancy stage. The findings of their research confirm that there are numerous misconceptions on forensic accounting especially in the assumption that forensic accounting and financial auditing are the same. Therefore, although the escalation of fraud is the common theme in both U.S. and Malaysia, the evidence indicate that there is a widening discrepancy in the growth of forensic accounting in Malaysia.

1.3 Focus of Research

Fraud is one of the most problematic issue faced by companies throughout the world. However, the pervasiveness and seriousness of fraud, is not captured in the extant methods used to combat fraud. Recent evidence indicates that forensic accounting services are effective in fraud detection and prevention. Nevertheless, these services are still underutilized by companies worldwide. A study by Bierstaker, Brody, and Pacini (2006) researched accountants' perception regarding fraud detection and prevention method. The findings revealed that organizational use of forensic

accountants was the least often used of any anti-fraud method but had the highest effectiveness rating.

This is similar to the findings of Ernst & Young's (2003) worldwide fraud survey, which stated that only 20% of organizations employed forensic accountants although the satisfaction level for the service 88% was the highest. The underutilization of these services as noted by numerous surveys has been addressed as the cause of escalating fraud and contributes towards the low recovery rate of fraud loss (Ernst & Young 2003; PricewaterhouseCoopers 2006a). In Malaysia, only 20% of companies are willing to invest in forensic accounting services (PricewaterhouseCoopers 2006a). The reason for the low usage of an essential service needs to be uncovered. Hence, the focus of this research is to:

> *"investigate the factors that influence the behavioral intention to use forensic accounting services in the detection and prevention of fraud by large Malaysian companies."*

1.4 Significance of Research

This research will have both the elements of practical and theoretical significance. It will be crucial for Malaysian companies to prepare themselves in the detection and prevention of fraud to deal with escalating economic crime (KPMG 2005; PricewaterhouseCoopers 2006a). Forensic accounting services has been identified as the most effective fraud detection and prevention method (Ernst & Young 2003; Peterson and Zikmund 2004; Bierstaker, Brody, and Pacini 2006; Kranacher 2006). However, the underutilization of forensic accounting services for this purpose is an emerging issue that needs to be addressed. As indicated by the PricewaterhouseCoopers' third biennial Economic Crime Survey, only 20% of companies in Malaysia sought the services of a forensic accountant. Therefore, this study will investigate the behavioral intention to use forensic accounting services by large Malaysian companies for the detection and prevention of fraud. The behavioral intention to use forensic accounting services for the detection and prevention of fraud has not been researched before.

Practically, the findings of this study would enable governments, professional bodies, company board of directors, organizational stakeholders, and service providers to improve their understanding on why organizations are still resisting the use of forensic accounting services in the detection and prevention of fraud. It will also allow them to devise practical methods and promotion strategies to increase the awareness, acceptance, and ultimately the use of forensic accounting services in the fight against fraud. Although the present study is bound to large companies in Malaysia, the findings should be relevant to all companies in Malaysia or in international settings.

The theoretical significance of the present study is that it will draw from the literature on four leading social cognitive theories namely; Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Health Belief Model (HBM), and Hierarchy of Effect Model (HOE). The imperative is to develop an integrative yet parsimonious conceptual framework and investigate the determinants of the behavioral intention to use forensic accounting services for fraud detection and prevention. Furthermore, organizational factors drawn from ethical decision-making, innovation adoption, and fraud studies will be explored to provide valuable underpinning in further explaining this distinct organizational decision-making. Hence, the integrative approach of combining individual level constructs with organizational level determinants will give a comprehensive view of this behavioral intention.

The intention to use forensic accounting services is unique because it arises from the anticipation of the negative outcome of fraud. Hence, threat perception from the HBM is incorporated in the conceptual framework. Since forensic accounting services is an emerging new field, organizations need to be aware of these services through external factors. Hence, external factors and awareness from the HOE is also included in the model. Furthermore, the intention to use forensic accounting services will be evidenced as an ethical decision intention. Therefore, this study incorporates both HBM and HOE in an ethical decision-making model.

Studies have shown that awareness directly affects perceived benefits but to the best of the researcher's knowledge, the influence of awareness as an antecedent of perceived risks has not been researched. To fill this theoretical research gap, this study will model awareness as affecting both perceived risks and perceived benefits. In addition, this study diverts from composite models drawn from TPB and HBM, which use either perceived benefits/risks or attitude as antecedents of intention. The present conceptual model believes valuable information could be gained if perceived benefits and perceived risks are investigated as direct antecedents of attitude. Therefore, this research gap will also be examined in the present study.

The literature recommends further research on the influence of organizational contextual factors in organizational ethical decision-making. Furthermore, to the best of the researcher's knowledge, the influence of organizational type based on regulated or non-regulated industry on ethical intention has not been researched. Therefore, this study investigates the moderating effect of organizational size, industry type, and organizational type on the behavioral intention model.

1.5 Outline of Thesis

This section presents an overview of the overall structure of the thesis and provides the frame of reference for the latter chapters. The thesis is organized into ten chapters. Chapter 1 starts by describing the background of the thesis with details on the prevalence of fraud and the costs of fraud. Next, the crucial need for forensic accounting services in fraud detection and prevention is discussed. Subsequently, the research problem is identified and this sets the context of the research with respect to the behavioral intention to use forensic accounting services in the detection and prevention of fraud. Finally, the focus of the research as well as its practical and theoretical significance is explained.

Chapter 2 reviews the literature on fraud, forensic accounting services, core theories, and relevant studies related to the behavioral intention to use forensic accounting services in the detection and prevention of fraud. First, fraud is defined, types of

fraud identified, the fraud triangle examined and an in depth analysis of current fraud standards against the fraud triangle is presented. Next, the history of forensic accounting services, types of forensic accounting services as well as a review on the differences between financial and fraud audit is provided. The core theories investigated are Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Health Belief Model (HBM), and Hierarchy of Effects Model (HOE). The chapter progresses with a critical review of these theories to shed light on their strong and weak points. The theories are also cross-examined to conceptualize the focal constructs that could be utilized towards the development of conceptual model for this study. In addition, selected research on protective behavioral intention and ethical decision-making are explored to provide further theoretical support for the conceptual model.

Chapter 3 states the research questions and research objectives. The salient determinants of the behavioral intention to use forensic accounting services by large companies for the detection and prevention of fraud are examined in detail. This study will take an integrative approach by combining individual level constructs from cognitive and threat perception factors with the organizational constructs from external, normative, internal control, external control, and contextual factors. The incorporation of each construct and factor as determinants of the behavioral intention are justified. Subsequently, this well researched conceptual framework is presented as the initial research model.

Chapter 4 presents the research methodology and design of this study. First, the choice of research paradigm and mixed method design is scrutinized. Then, the research process for qualitative field study, pilot test, and quantitative national survey is discussed. For each research phase, the sample selection, data collection and data analysis process is detailed.

Chapter 5 describes the operationalization of the qualitative field study. The findings of data analysis are tabulated into tables and examined. Factors, constructs, and links are categorized and individual conceptual models are drawn for each sample. Subsequently, the individual models are cross-examined methodically and salient factors, constructs, and links are identified. The ensuing section incorporates the

pertinent findings into the initial research model to form a comprehensive and enhanced final research model.

Chapter 6 outlines the development of the research hypothesis. Each hypothesis is systematically formulated based on support from extensive literature review and field study findings. The formulation of the survey instrument is discussed. The relevant constructs are identified and individual items are either developed, adapted or adopted from existing questionnaires.

Chapter 7 details the operation of the empirical pilot study. The results of the pilot study are then presented. Next, the administration of the national survey is discussed and the results of the first part of the national survey is presented. The analysis of sample demographics includes type of organization, size of organization, type of industry and utilization of forensic accounting services.

Chapter 8 continues with the national survey data analysis. First, the selection of the Partial Least Square (PLS) based Structural Equation Modeling (SEM) technique is justified. The assessment of the measurement model including convergent validity, discriminant validity and indicator weight is described. This is followed by the assessment of structural model. Both the results of the model's explanatory power and hypotheses testing are detailed.

Chapter 9 interprets and discuses the results of hypotheses testing. The implications for each of the accepted hypotheses are complemented with practical propositions. In addition, the rejected hypotheses are examined and plausible explanations given.

Chapter 10 summarizes the research highlights. The significant theoretical and practical contributions are presented. Finally, the thesis concludes with discussions on the limitations of this study and suggestions on possible future research directions.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This literature review begins with discussions on the definition of fraud, types of fraud, and the fraud triangle to conceptually describe the key elements of fraud. Thereafter, the failure of current fraud standards in addressing the dimensions of the fraud triangle is detailed. The definition of forensic accounting, the history of forensic accounting and the types of forensic accounting services are also explored. This is followed by an in-depth analysis of the differences between financial audit and fraud audit to elucidate the vital need for forensic accounting services in fraud detection and prevention.

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Muthusamy, G., M. Quaddus, and R, Evans. 2010. Organizational intention to use forensic accounting services for fraud detection and prevention of fraud by large Malaysian companies. In *Oxford Business & Economics Conference*, St. Hugh's College, Oxford University, Oxford, U.K., 28-30 June.

Muthusamy, G., M. Quaddus, and R, Evans. 2010. Behavioral intention to use forensic accounting services: A critical review of theories and an integrative model. In *Global Business and Finance Research Conference*, London Hilton, U.K., 14-17 July.

Muthusamy, G., M. Quaddus, and R, Evans. 2010. The Theory of Planned Behaviour and organisational intention to use forensic accounting services. In *24th Annual Australian and New Zealand Academy of Management Conference*, University of South Australia, Adelaide, 8-10 December.

Muthusamy, G., M. Quaddus, and R, Evans. 2010. An exploratory study of the factors influencing large Malaysian companies' intention to use forensic accounting services. In *24th Annual Australian and New Zealand Academy of Management Conference*, University of South Australia, Adelaide, 8-10 December.

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Muthusamy, G., M. Quaddus, and R, Evans. 2010. Behavioral intention to use forensic accounting services: A critical review of theories and an integrative model. *The Business Review, Cambridge* 15(2): 42-48.

The review describes the social cognitive theories that could provide practical insights into the behavioral intention to use forensic accounting services. The goal of this research is the development of a conceptual model with the best utility and efficiency to predict this behavioral intention. Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Health Belief Model (HBM), and Hierarchy of Effects Model (HOE) is first evaluated individually to clarify their strengths and weaknesses. Subsequently, the four models are cross-examined to conceptualize the core constructs that could be incorporated in the conceptual model for this study. In addition, selected integral studies on protective behavioral intention and ethical decision-making are reviewed to evaluate the key constructs that could be utilized for the development of a comprehensive, integrative, yet parsimonious framework.

2.2 Fraud

2.2.1 Fraud Definition

The review of literature illustrates numerous definitions of fraud. The Black's Law Dictionary (Garner 2009, 731) defined fraud as "a knowing misrepresentation of the truth or concealment of material fact to induce another to act to his or her detriment". Asare (2006, 2) stated that although fraud has no strict legal definition, it can be described as "a situation where a person appropriates by deception a property belonging to another with the intention of permanently depriving the other of it". This view corresponds to the analysis by Levi et al. (2007, 9) who argued that the issue of defining the constitution of fraud activities is debatable. However, to avoid confusion, they characterized fraud as "the obtaining of financial advantage or causing of loss by implicit or explicit deception; it is the mechanism through which the fraudster gains an unlawful advantage or causes unlawful loss".

All the above definitions are akin to the description of fraud by KPMG (2005, 5) as "a deliberate deceit planned and executed with intent to deprive another person of his property or rights directly or indirectly". In the U.S., The Institute of Internal Auditors, The American Institute of Certified Public Accountants, and Association of Certified Fraud Examiners (2008, 5) described fraud as "any intentional act or

omission designed to deceive others, resulting in the victim suffering a loss and/or the perpetrator achieving a gain". This is parallel to the clarification in Malaysia by the ISA 240 'The Auditor's Responsibilities to Consider Fraud in an Audit of Financial Statement (Revised)'. Here, fraud is expressed as:

> *"an intentional act by one or more individuals among management, those charged with governance, employees, or third parties, involving the use of deception to obtain an unjust or illegal advantage ".*

Based on the grounds that this research is conducted in Malaysia, the above definition will be adopted for the purpose of this study.

2.2.2 Types of Fraud

Since fraud can take on multifarious forms, it has been classified into various categories. PricewaterhouseCoppers (2007a) in their 4th biennial Global Economic Crime Survey categorized fraud into five types: asset misappropriation, accounting fraud, corruption and bribery, money laundering, and Intellectual Property (IP) infringement. The survey found that asset misappropriation was the highest form of fraud committed (30%) followed by IP infringement (15%). In Malaysia, PricewaterhouseCoppers (2007b) revealed that asset misappropriation was also the major category of fraud (36%). According to the report, this figure is significantly higher than the Asia Pacific (27.5%) and even global (29.7%) statistics. This was followed by corruption and bribery (23.9%), which was also much higher than the Asia Pacific (14.3%) and almost doubles the global level (12.7%). KPMG (2009) categorized fraud into eight fundamental types namely theft of physical assets, theft of outgoing funds, theft of incoming funds, theft of intangible assets, corruption, electronic commerce and computer related fraud, financial reporting fraud, and identity fraud and other consumer related fraud. The survey concluded that the major category of fraud committed is theft of physical assets (83%), followed by theft of funds (outgoing) (77%), corruption (42%), theft of funds incoming (33%) and financial reporting fraud (31%).

One of the most comprehensive and widely accepted classifications of fraud is described by the Association of Certified Fraud Examiners. This method divides all fraud into three main branches: asset misappropriation, corruption, and fraudulent statements. For each branch, there are examples of type of fraud activities. This classification is popularly known as the ‘Fraud Tree’ and is portrayed in Figure 2.1.

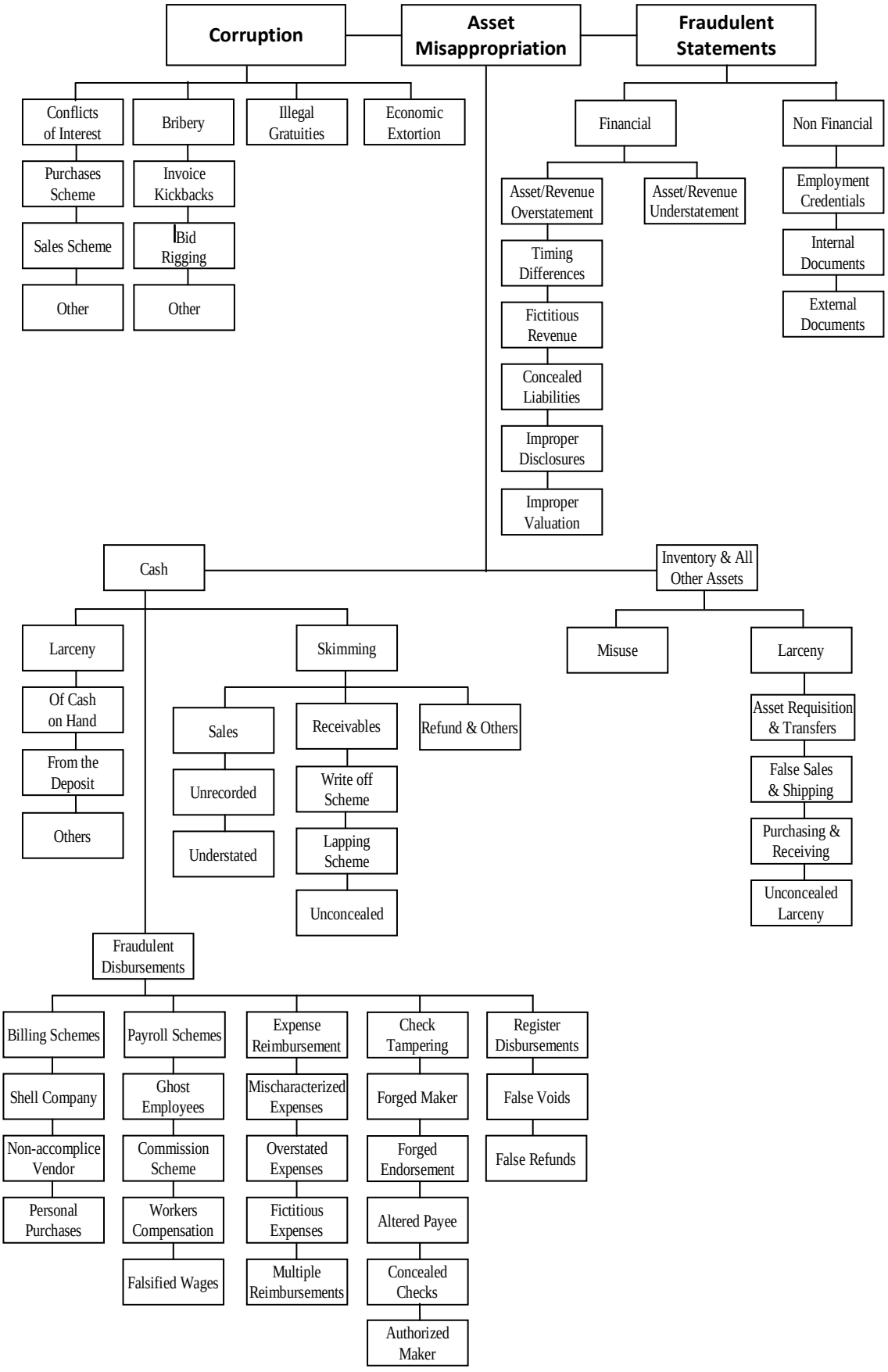

Figure 2.1: Fraud tree
Source: Association of Certified Fraud Examiners (2008)

2.2.3 Fraud Motivation

Cressey (1953) interviewed 200 convicted fraudsters in his research to unmask the common threads of fraud motivation. The major conclusion of this research is now presented as the fraud triangle (Figure 2.2). The three elements of the fraud triangle are:

- Pressure/Incentive
- Opportunity
- Rationalization

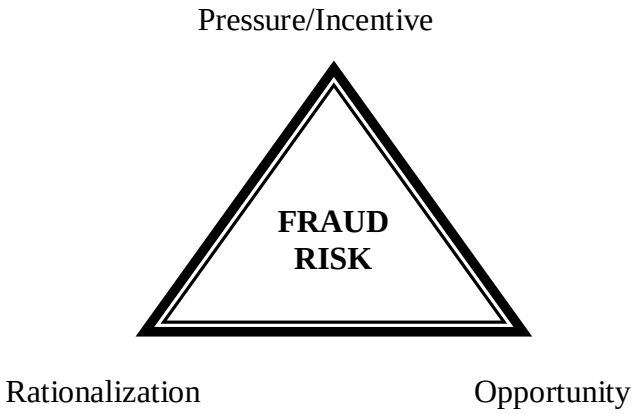

Figure 2.2: Fraud triangle

2.2.3.1 Pressure/Incentive

Pressure can originate from either financial or non-financial need (W. S. Albrecht, C. Albrecht, and C. C. Albrecht 2008). The typical financial pressure on an individual would involve financial strain due to some form of vice such as gambling and drugs whilst non-financial pressure include insatiable greed, the egoistical need to report inflated results and work frustration (Asare 2006; Singleton et al. 2006; W. S. Albrecht, C. Albrecht, and C. C. Albrecht 2008). The PricewaterhouseCoopers (2007a) fraud survey revealed that greed was the highest individual incentive for fraud (57%) followed by maintaining a lifestyle unsupported by salary (36%) and the prospect of being laid off (12%). The result of the 'Profile of a Fraudster' survey (KPMG 2007) parallels this whereby 47% of fraudsters agreed that greed was their

prime motivation. In addition, the statistics in Malaysia (KPMG 2009) also confirmed that greed (62%) was the highest motivation for fraud. This was followed by personal financial pressure (39%).

In the PricewaterhouseCoopers (2009) 'Fraud in a downturn' survey, 68% of respondents attributed increased incentives/pressures as the underlying cause of increased fraud risk. Only 18% ascribed opportunity and 14% rationalization as the fraud risk factor (Figure 2.3).

Figure 2.3: Fraud triangle statistics
Source: PricewaterhouseCoopers (2009)

Further analysis on the contributing factors towards increased incentives/pressures to commit fraud reveals that difficulty to achieve financial targets (47%) as a major source of pressure. The delicate economic situation during the PricewaterhouseCoopers (2009) survey period made it even more impossible to achieve unrealistic targets and this drove individuals to inflate revenues, omit expenses, and resort to fraudulent behavior. Fear of losing job was the second highest pressure at 37%. This fear, which is inevitable in a downturn, may force the individual to resort to economic crimes.

2.2.3.2 Opportunity

The next element of the fraud triangle that enables fraud to be committed is opportunity. For employees, the opportunity is present when they believe they can override anti-fraud controls (Crumbley and Apostolou 2005; Singleton et al. 2006). Asare (2006) suggested that weakness or lack of internal controls allow employees the prospect to commit fraud. Asare (2006, 4) also reported that some examples of internal control weaknesses are, "lack of policies and procedures, easy access to information, lack of supervision and review, failure to segregate financial duties, inadequate management approval and ineffective monitoring of controls". Furthermore, fraud is more likely to occur in companies that are unclear on acceptable behavior policies and if employees have little fear of being discovered (Wells 2003; Chartered Institute Of Management Accountants 2009). Additionally, W. S. Albrecht, C. Albrecht, and C. C. Albrecht (2008) emphasized on management fraud opportunities, which they believe originate from a weak board of directors.

The survey by PricewaterhouseCoopers (2007a) detailed that the three most quoted opportunities for fraud was insufficient controls (34%), authority to override controls, (19%) and staff anonymity (17%). An alarming 49% of fraudsters in the KPMG (2007) report said that weak internal control provided the opportunity for them to commit fraud. Another 36% abused the existing controls and the remaining 15% used collusions to commit fraud. The KPMG (2009) report on Malaysian companies was even more distressing whereby 56% of respondents attributed poor internal control as the major factor that allowed the incidence of fraud to take place in their organization. The fact that more than half of the fraudsters exploited internal controls highlights the disquieting issue of internal control inadequacy in fraud prevention.

Furthermore, 45% of the respondents blamed collusion between employees and third party corroborated fraud whilst 39% attributed fraud to poor ethical practices in the organization. Whilst 25% respondents stated management override of internal control as a contributing factor, another 25% believed that fraud is due to directors' lack of control over management. These figures draw attention to the lack of

integrity amongst management who do not set an ethical 'tone of the top' and even resort to collusion and override of controls.

The PricewaterhouseCoopers (2009) report revealed that the major factor contributing towards creating more opportunities to commit fraud in tough time is staff reduction (69%). They believed that lack of staff results in fewer resources being deployed on internal controls. Moreover, 49% respondents blame the shift of management focus towards survival of business leads to increased opportunities in committing fraud. In sum, management neglect of fraud detection and prevention heightens opportunities for fraud to be committed.

2.2.3.3 Rationalization

The final element of the fraud triangle is rationalization. It was interesting to note that the Association of Certified Fraud Examiners (2008) survey statistics revealed 87% of fraudsters are first time offenders. Singleton et al. (2006) stated that fraudsters usually have a personal code of ethics and can even be religious. However, they justify their unethical behavior to reconcile with their own values in order to neutralize their guilt. Fraudsters also believe that they are victims of circumstances (Wells 2003; Peterson and Hansen 2008). According to the Chartered Institute of Management Accountants (2009, 13) the fraudulent acts are rationalized "as:

- necessary – especially when done for the business
- harmless – because the victim is large enough to absorb the impact
- justified – because 'the victim deserved it' or 'because I was mistreated"

PricewaterhouseCoopers (2007a) reported that fraudsters self-rationalize their act and the most common excuse was low temptation threshold (44%), lack of awareness of wrongdoing (40%) and denial of financial consequences of fraudulent act (26%). The excuses are based on the belief that if no one is hurt, it is a benign act (Singleton et al. 2006). In business transactions, Singleton et al. (2006, 10) said that rationalization is driven by the quote 'All is fair in love and war, and in business, which is amoral, anyway'.

The three elements of the fraud triangle are interactive. Cressey (1953) asserted that all three factors need to be present simultaneously for fraud to occur. Singleton et al. (2006) and Rae and Subramaniam (2008) believed that a company is most vulnerable to fraud when both opportunity and pressure is present. W. S. Albrecht, C. Albrecht, and C. C. Albrecht (2008) agreed and emphasized that the greater the concurrent presence of opportunity and pressure, the rationalization to commit fraud is significantly enhanced. However, if the fraudster is more deviant, it is easier for him to find the opportunity and motivation to commit crime (W. S. Albrecht, C. Albrecht, and C. C. Albrecht 2008). In sum, these common threads of fraud motivation, pressure/incentive, opportunity, and rationalization are all essential in forming a clear understanding of why fraud occurs.

2.2.4 Analysis of Current Fraud Standards against the Fraud Triangle

The consensus is that the fraud triangle provides valuable insights as to why fraud occurs (Singleton et al. 2006; Wells 2007). This understanding is important because studies by LaSalle (2007) and Peterson and Hansen (2008) have verified that accounting students' risk assessment ability significantly improved with knowledge of the fraud triangle. The explosion of fraud incidences worldwide led to the implementation of inventive new regulations and auditing standards throughout the world (KPMG 2006). An example is the SAS 99 that was put into practice in the U.S. after the Enron and WorldCom collapses. Interestingly, the SAS 99 recommends the use of the fraud triangle as a conceptual tool to evaluate the risk of fraud.

W. S. Albrecht, C. Albrecht, and C. C. Albrecht (2008) conducted an in-depth analysis of the contributing factors that led to the large-scale frauds of this millennium and referred to these factors as elements of a perfect storm. The analysis revealed that all the contributing factors can be individually categorized as an element of the fraud triangle. After evaluating the SAS 99, they made an interesting comparison to investigate whether elements of the fraud triangle have been sufficiently addressed by the new standards as displayed in Table 2.1.

Table 2.1: Analysis of new fraud standards against the fraud triangle
Source: W.S. Albrecht, C. A. Albrecht, and C. C. Albrecht (2008)

Element of the Fraud Triangle	Element of the Perfect Fraud Storm	Have the Standards Sufficiently Addressed These Issues?
Perceived Pressures	• Misplaced executive incentives • Unrealistic Wall Street expectations • Large amounts of debt • Greed	None of the new standards or rules has addressed perceived pressures. Executive incentives (equity compensation, etc.) have not been dealt with, the role of analysts in providing earnings guidance and setting expectations hasn't been eliminated, firms have increased amounts of debt and, with the higher and higher amounts of executive pay, it doesn't seem that greed has been eliminated.
Perceived Opportunities	• Good economy was masking many problems • Selective interpretation of rules based accounting standards • Behavior of CPA firms	The new standards and rules go a long way in addressing perceived opportunities. By strengthening the roles of auditors, audit committees, boards of directors, and regulators, we do believe the behavior of both CPA firms and boards have changed. The economy isn't as strong but will go through cycles; rules-based accounting hasn't changed.
Rationalization	• Moral decay in society • Educator failures	None of the new standards or rules has addressed the level of moral decay. Studies on integrity and related topics (cheating in school) would indicate that integrity is decreasing, not getting better. Educators must start teaching quality ethics and fraud courses, but they are still mostly elective and small.

The table indicates that the new compliance and fraud detection standards are still insufficient in addressing the root cause of fraud. Since the new standards cannot weed out fraud. W. S. Albrecht, C. Albrecht, and C. C. Albrecht (2008) asserted that

the best possible solution lies in compulsory fraud audits conducted by fraud specialists. Therefore, their analysis reiterates the need for forensic accountants in the battle against fraud.

Wilks and Zimbelman (2004) also recommended that audit standards such as the SAS 99 be re-examined because these standards inhibit auditors' strategic reasoning power. They believe that the complex nature of fraud requires unpredictable audit strategies, considerations on management manipulation of fraud cues and auditors gathering new, unusual or random evidence. The authors emphasized that these tactical and methodic suggestions point towards the implementation of forensic audits instead of the usual financial audit.

2.3 Forensic Accounting

2.3.1 History of Forensic Accounting

> **IN THE BEGINNING**
>
> *"It's said that accountants' predecessors were the scribes of ancient Egypt, who kept the pharaohs' books. They inventoried grain, gold and other assets. Unfortunately, some fell victim to temptation and stole from their leader, as did other employees of the king. The solution was to have two scribes independently record each transaction (the first internal control). As long as the scribes' totals agreed exactly, there was no problem. But, if the totals were materially different, both scribes would be put to death. That proved to be a great incentive for them to carefully check all the numbers and make sure the help wasn't stealing. In fact, fraud prevention and detection became the royal accountants' main duty."* (Wells 2000, 1)

This story highlights the important role of accountants in fraud detection and prevention from the time of ancient pharaohs. Even in 1912, the author of "Auditing Theory and Practice" stated that the foremost role of auditors is to prevent and detect fraud (Wells 2000). Nonetheless, this role has slowly eroded. With the advent of

huge conglomerates and copious amount of transactions, it was impractical and impossible to vouch for each transaction. Instead, reporting to provide 'reasonable assurance' became the primary job of an auditor (Malaysian Institute of Accountants 2009). As Wells (2000, 2) stated, "fraud detection or prevention was relegated to a secondary role" and before long, fraudsters took advantage of this melting pot of opportunity.

The need for a new type of accountant arose from this scenario. The evidenced origin of forensic accounting can be traced back to 1824 when a Scottish accountant advertised his expertise in the newspaper (Nunn et al. 2006). During that time, forensic accountants investigated fraud and came up with evidence that could be used in court. By early 1900's articles discussing expert witnessing, evidence arbitration and awards began to appear (Crumbley 2001). Maurice Peloubet first published the phrase 'forensic accounting' in 1946 in an article title "Forensic Accounting: Its Place in Today's Economy" (Peloubet 1946). Since then, the field of forensic accounting has grown rapidly overtime. The plethora of accounting scandals of this millennium aided the tremendous explosion of this field and rightly put it in the limelight (Ramaswamy 2005).

2.3.2 Definition of Forensic Accounting

Black's Law Dictionary (Garner 2009, 721) refered to forensics as "used in or suitable to courts of law or public debate". Singleton et al. (2006, 44) stated, "accordingly, the term forensic in the accounting profession deals with the relation and application of financial facts to legal problems". The AICPA Forensic and Litigation Services Committee (2006, 2) in its report on Forensic Procedures and Specialists articulated, "forensic accounting services generally involve the application of special skills in accounting, auditing, finance, quantitative methods, certain areas of the law and research, and investigative skills to collect, analyze, and evaluate evidential matter and to interpret and communicate findings, and may involve either an attest or consulting engagement." For the purposes of the above discussion paper, forensic accounting services were categorized into litigation services and investigative services.

According to AICPA Forensic and Litigation Services Committee (2006, 2), "litigation services entail the role of the forensic specialist as an expert or consultant and consist of providing assistance for actual, pending, or potential legal or regulatory proceedings before a trier of fact in connection with the resolution of disputes between parties. Litigation services generally consist of expert witness, consulting, and other services." Whilst "investigative services include forensic services such as performing analyses or investigations, may require the same skills used in litigation services. An investigation is defined as structured gathering of documentary evidence and testimony to resolve allegations of improper activity, including a reported fraud." Houck et al. (2006) detail that "fraud examination is a methodology for resolving fraud allegation from inception to disposition, including obtaining evidence, interviewing, writing reports, and testifying."

The CICA (2004, 3) defined investigative and forensic accounting engagements as "investigative and forensic accounting engagements are those that require the application of professional accounting skills, investigative skills, and an investigative mindset. Such skills and mindset apply to engagements involving disputes or potential disputes, or instances where there are risks, concerns, or allegations of fraud or other irregular conducts."

The often-quoted definition by Bologna and Lindquist (1995) for forensic accounting is "the application of financial skills, and an investigative mentality to unresolved issues, conducted within the context of rules of evidence. As a discipline, it encompasses financial expertise, fraud knowledge and a sound knowledge and understanding of business reality and the working of the legal system." Based on their description Ramaswamy (2005, 69) said, "this implies that the forensic accountant should be skilled not only in financial accounting, but also in internal control systems, the law, other institutional requirements, investigative proficiency, and interpersonal skills. Corporations can rely on these skills for developing of a consistent system of corporate governance, disseminating such information within and outside the company, ensuring that governance policies and objectives are interwoven into the internal control system, setting up fraud prevention systems, and investigating any existing fraud."

However, Hunt (1997) argued that forensic accounting is a new discipline and definitions vary or do not exist within standard accounting terminology. In addition, Bhasin (2007) aptly emphasized that the definition of forensic accounting is evolving to meet the growing needs of companies in the new millennia. Buckhoff (2002, 9) supported this view and says, "forensic accounting is rapidly-growing specialization of accounting concerned with the detection, investigation, and prevention of occupational fraud and white-collar criminal activity." Likewise, The ACFE's manual states that fraud examiners are expected to assist in fraud prevention, deterrence, investigation, and also remediation.

The providers of forensic accounting services, which include all Big Four accounting firms and other mushrooming smaller accounting entities, have defined forensic accounting according to the type of services they provide. An example is PricewaterhouseCoopers (2008, 40), which have defined forensic accounting as a "specialized discipline that arose to deal with instances of financial misstatement, in terms of both prevention and detection and, ultimately, recovery and remedy. Forensic accounting means the investigation or analysis of accounting evidence relating to unusual transactions due to either error or fraud. Forensic accountants are generally used in two ways:

1. to proactively investigate the control environment to identify weaknesses and areas susceptible to fraud or loss (fraud prevention)
2. to investigate a specific situation to ascertain the true financial position where:
   - a transaction may have occurred but the cause is unknown, such as an unexplained loss, inventory variance or some other anomaly
   - a transaction has been deliberately recorded to misstate the financial position (fraud detection)"

This definition highlights the emerging role of forensic accountants for both reactive (investigative) and proactive (preventive) engagements. The definition by L. E. Heitger and D. L. Heitger (2008, 561) affirmed this; "A broad definition of forensic accounting would include fraud detection and prevention, litigation support and expert witnessing and other investigative services".

Based on the above-mentioned explanations on the evolving role of forensic accounting, the following definition of forensic accounting services is adapted and used for this thesis:

> *"Forensic accounting services are services provided by accounting firms that use specialized investigative skills and techniques in detecting any existing fraud and proactively setting up fraud prevention systems."*

2.3.3 Types of Forensic Accounting Services

The evolution of the forensic accounting field has made it cover a broad area of fraud detection and prevention. Since the focus of this research is the underutilization of forensic accounting services in Malaysia, the imperative would be to identify the multifarious services provided by accounting firms specifically in Malaysia for fraud detection and prevention. The Big Four accounting firms comprising of Deloitte, KPMG, Ernst & Young, and PricewaterhouseCoopers were chosen to highlight the various services because these firms provide the most extensive services and are represented throughout the world. The websites of these firms were scrutinized. All of the websites promote forensic accounting services as an important service provided by their firm. In addition, Deloitte (www.deloitte.com.my), KPMG (www.kpmg.com.my), and PricewaterhouseCoopers (www.pwc.com.my) had detailed descriptions on the diverse types of forensic services offered. Deloitte also publicized their most requested forensic services and these are fraud and financial investigation services, analytic and forensic technology, fraud and corruption risk management, Whistleblower Hotline - TipOffs Anonymous, litigation and arbitration support services. However, the Ernst & Young (www.ey.com.my) website was brief and only outlined the types of services they provide.

The comprehensive table below (Table 2.2) identifies the types of forensic accounting services offered by the 'Big Four' in Malaysia. The broad range of services indicates the numerous way to assist fraud detection and prevention for the forensic accountants. In addition, the table also exemplifies the latest form of services offered due to the advancement in forensic technology.

Table 2.2: Forensic accounting services offered by the 'Big Four'

Individual Services Item	Total Number of Services
Deloitte Fraud & financial investigations Litigation support & expert witness Computer forensic services & eDiscovery Data analytics & data visualization Anti Money Laundering (AML) consulting and investigations Anti Money Laundering (AML) Check Foreign Corrupt Practices Act (FCPA) investigations & consulting Business intelligence services Fraud risk management consulting Whistle blowing services (Tip-offs Anonymous) Fraud & investigation training Forensic tools and technologies • DTect - proprietary data analytics methodology • AMLcheck - a secure online compliance tool • DTermine - Surveys and benchmarking • Tip-offs Anonymous - Whistle blowing hotline • eDiscovery - collection of complex data using specialized techniques and electronic tools.	12
KPMG Fraud Investigation • Assess vast quantities of information • Reconstruction of fraud and other misconduct • Analysis of weaknesses in internal control systems • Documentation and preservation of evidence • Assessment of financial impact • Assistance in dispute resolution as an independent expert or mediator • Interviewing witnesses and suspects • Providing expert testimony • Preparing reports for court purposes • Liaising with police and regulators Fraud Risk Management • The facilitation of a fraud risk aware culture • The conduct of a fraud risk self assessment • The development of a fraud control plan Dispute Resolution Services • Account reconstruction and analysis • Documenting transaction summaries • Expert determination • Financial analysis • Information management • Quantification of lost earnings • Valuations • Asset tracing Forensic Technology Services • Digital evidence recovery • Cyber Forensics • Forensic data analysis • Document Management Services	8

Corporate Intelligence • Corporate strengths and weaknesses • Financial background • Reputation and operating history of individuals and entities • New employees, contacts or partners • Senior management and boardroom appointments • Questionable or illegal activities • Joint ventures and other partnering arrangements • Agent and supplier relationships • Investments • Offshore arrangements • Sources of capital • Mergers and acquisitions • Embarking on legal action KPMG EthicsLine • Confidential fraud reporting tool for employees K-Trace • analyze potential red flags of fraud schemes FCPA (U.S Foreign Corrupt Practices Act)-related services • review the effectiveness of its FCPA, anti-corruption and anti bribery compliance programs • develop effective internal FCPA compliance policy and training programs • Carry out FCPA Due Diligence in Mergers and Acquisitions • Develop FCPA risk mitigation strategies • Carry out FCPA risk assessments • develop FCPA-compliant internal accounting controls • carry out internal FCPA investigations	
Ernst &Young Anti-Fraud Corporate Compliance • assist in financial restatements for public listings • develop regulatory compliance strategies Investigations & Disputes • investigate insolvency and bankruptcy fraud • investigate compromises of intellectual property and trade secret Fraud and Investigations • investigate financial reporting and securities fraud • examine financial and source document of fraud • investigate money laundering, grey market activity, embezzlement and corruption • investigate suspect financial performance by a unit, subsidiary or joint venture Dispute Services • provide expert reports and testimony Forensic Technology & Discovery	6

PricewaterhouseCoopers Economic Crime Risk Management • Implementation of clear organizational values, ethics and behavioral expectations • Major risks identified, assessed, actively managed and mitigated. • Implementation of adequate culture, process and technology controls • Implementation of clear guidance/ process for reporting concerns and measures to address them Forensic Investigation • review complex accounting systems • unravel complex financial transactions involving potentially false accounting, misappropriation of funds and asset stripping • reconstruct financial statements Litigation Support • provide independent and objective financial advice in litigation, arbitration or mediation. • analysis of liability and damages by isolating issues in contention, gathering financial data, reconstructing financial information and quantifying exposure/damages Computer Science • Examination of electronic evidence to ensure that evidence obtained is legally admissible. • Identify, collect, analyze and manage electronic information and evidence in computer systems or storage media. Regulatory compliance • assist in implementing and/or assessing regulatory compliance programs • supporting companies that may be subject to regulatory investigation such as the Foreign Corrupt Practices Act. Licensing Management Services • examining compliance with licensing and franchising agreements • identify shortfalls in royalties	6

All the listed forensic services are combined and condensed in Table 2.3 as common services offered by the 'Big Four'. The statistics reveal that the most popular services offered by all the firms are fraud and financial investigation, litigation support, expert witness and dispute resolution, forensic technology, fraud risk management, regulatory compliance strategies, and business intelligence. However, the firms offer these services in various names and publicize them accordingly in their websites.

Table 2.3: Common forensic accounting services offered by the 'Big Four'

Common services	Deloitte	KPMG	Ernst & Young	PwC
1. Fraud and Financial Investigation	✓	✓	✓	✓
2. Litigation support, expert witness and dispute resolution	✓	✓	✓	✓
3. Forensic technology	✓	✓	✓	✓
4. Fraud risk management	✓	✓	✓	✓
5. Regulatory compliance strategies	✓	✓	✓	✓
6. Business intelligence	✓	✓	X	✓

2.3.4 The difference between Financial Audit and Fraud Audit

External or internal auditors conduct financial audit whilst fraud examiners who are qualified forensic accountants perform fraud audits (Singleton et al. 2006). The auditors' task to detect fraud dates back to 1892 (Di Gabrielle 2009). In 1895, the precedence case of the London and General Bank ruled that auditors are not responsible to detect all frauds but instead required to perform their job with reasonable care (Zikmund and O'Reilly-Allen 2007). However, the author of 'Auditing: A Practical Manual for Auditors', Dicksee (1905) still emphasized that the foremost role of the auditor is fraud detection. Likewise, more than a hundred years later, the public still believes that auditors can, must and will find any existing fraud (Coenen 2006). This 'expectation gap' is largely due to the misconception that auditors posses the skills of forensic accountants who are specialized in fraud audits (Cheney 2005). In addition, the audit standards implemented by governments only adds to the innuendo of fraud detection through auditors (Coenen 2006; Arens and Elder 2006; Zhang 2007). However, the hard reality is that financial auditors have

limited expertise in detecting fraud (Coenen 2006). Hence, the 'expectation gap' between audit users and audit practitioners remains substantial (DiPiazza et al. 2006).

W.S. Albrecht, C. A. Albrecht, and C. C. Albrecht (2008) analyzed the differences between financial audit and fraud audit in the detection of fraud and provided an in-depth comparison as presented in Table 2.4.

Table 2.4: Financial audit vs. Fraud audit
Source: W.S. Albrecht, C. A. Albrecht, and C. C. Albrecht (2008)

	Financial Audit	**Fraud Audit**
Purpose	Provides reasonable assurance that financial statements are prepared in accordance with audit standards.	Detects and investigates suspicions of fraud. If extensive enough, could provide absolute assurance that material financial statement fraud isn't occurring.
Scope	Financial auditors are not looking for specific problems with the company, but rather are engaged to look at and issue an opinion on the overall financial statements.	Fraud audits investigate suspected fraud, often targeting only a handful of accounts. There is always predication and sometimes individuals have already confessed to fraud and provided insights into where to look. If fraud audit approaches were done on the entire financial statements, the cost would be exorbitant.
Method	Financial auditors must rely on sampling which introduces sampling error.	Fraud auditors analyze all transactions that are within the scope of the audit, completely eliminating sampling error.
Procedures	Re-performance, analytics, documentation, confirmation, observation, physical examination, and inquiry, all performed with as little disruption as possible.	Audit procedures standards plus surveillance, extensive interviews, seizing of computers and other items, and confiscation of records, all performed without forewarning and without regard to disruption of business.

Timing	Occur in a predictable and consistent manner with the majority of the audit happening close to or shortly after year end.	Occur when there is predication- an allegation or suspicion of fraud, and can occur at any time during the year, without notice or warning. Without predication, fraud audits would be extensive and expensive.
Reason for Testing Controls	Financial auditors test internal controls to see if they work and to establish the scope of their audit. They also examine controls as required by 404.	Fraud auditors test controls to see where there is a potential for fraud and then look to see if control weaknesses have been abused to commit fraud. They realize that a lack of controls provides fraud opportunities.
Reliance on Management	There is not the time or the economic resources to corroborate all information provided by management. Financial auditors must often rely on management representations because it is economically infeasible not to do so. They neither assume that management is honest or dishonest.	Fraud auditors rarely, if ever, rely on management representations because they already have the suspicion that management cannot be trusted and is committing fraud—that is the reason they were engaged.
Training	Financial audits are performed by Certified Public Accountants, individuals trained in General Accepted Audit Standards (GAAS) and General Accepted Audit Procedures (GAAP). Becoming a CPA requires little specific fraud training beyond a basic audit course. CPAs are trained to provide a vast array of financial services.	Fraud audits are usually conducted by Certified Fraud Examiners (CFEs). CFEs understand auditing and accounting, and are also required to have significant skills in forgery identification, detection and investigation methods, interviewing, criminal profiling, and how perpetrators use conspiracy, and fraud schemes. CFEs are trained to detect and investigate fraud.
Exposure to Fraud	Financial auditors are rarely exposed to fraud. With 17,000 public companies, and only a handful being investigated for fraud, a financial auditor may go an entire career without ever seeing a financial statement fraud.	Fraud auditors live on a constant diet of fraud. Detecting and investigating fraud is what they do, and most clients they are engaged by have a high suspicion of fraud. Investigation is the expectation in a fraud audit.

This comparison takes into account every aspect of audit including purpose, scope, method, procedure, timing, reason for control testing, and reliance on management. Even the training and exposure to fraud of the singular auditors are compared. Fundamentally, this comparison elucidates the weaknesses of financial audit in fraud detection. In addition, the analysis clearly indicates that fraud audits are indispensable in the detection of fraud. Therefore, the imperative is to utilize fraud audit, which is specifically geared to detect fraud. In conclusion, the 'audit expectation gap' can only be overcome through forensic accounting services.

2.4 Behavioral Intention to Use Forensic Accounting Services

This thesis began by evidencing forensic accounting services as essential for effective fraud detection and prevention in an organization. Forensic accounting services were also discussed as particularly important in the present technologically advanced yet fragile economic conditions. However, these services are alarmingly underutilized in Malaysia whereby only 20% of companies are willing to invest in them.

Intentions are the best predictor of any planned behavior and understanding the antecedents of intentions provides practical insights into the behavior (Ajzen and Fishbein 1980). This study aims to develop a conceptual model to understand the behavioral intention to use forensic accounting services. To the best of the researcher's knowledge, there has not been any specific study on the behavioral intention to use professional services including forensic accounting services. Therefore, this study intends to fill this empirical research gap.

Research on behavioral intentions has used a core set of theories namely Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) (Sheppard, Hartwick, and Warshaw 1988; Eagly and Chaiken 1993; Godin and Kok 1996; Conner and Armitage 1998). The intention to use forensic accounting services is unique because it arises from the anticipation of the negative outcome of fraud and

the desire to avoid it. The protective behavior against the threat of fraud is similar to the protective behavior against a health threat. Thus, the Health Believe Model (HBM), which has adapted theory from behavioral sciences to understand the decision to use protective health services, will be explored to provide further insight of the intention to use forensic accounting services. Furthermore, the Hierarchy of Effects Model (HOE) from the marketing literature will also be discussed since the intention to use forensic accounting services is a consumer purchase intention. Subsequently, the following literature review will provide the theoretical underpinnings in explaining the behavioral intention to use forensic accounting services in fraud detection and prevention.

2.4.1 Theory of Reasoned Action

Theory of Reasoned Action (TRA) is originated from expectancy value theories in the field of social psychology. Ajzen and Fishbein (1980, 4) attested that TRA is "designed to explain virtually any human behavior." The basis of TRA is built on the assumption that human beings make systematic use of the information available to them before they make decisions. TRA asserts that intention is the best predictor of behavior assuming that humans make rational decisions (Fishbein and Ajzen 1975). However, intention to perform a particular behavior depends on attitudes towards that behavior and subjective norms (Ajzen and Fishbein 1980). Subsequently, the framework of TRA posits that behavior is driven by intentions, which are a function of attitude and subjective norms surrounding the performance of the behavior. The model is diagrammatically presented in Figure 2.4.

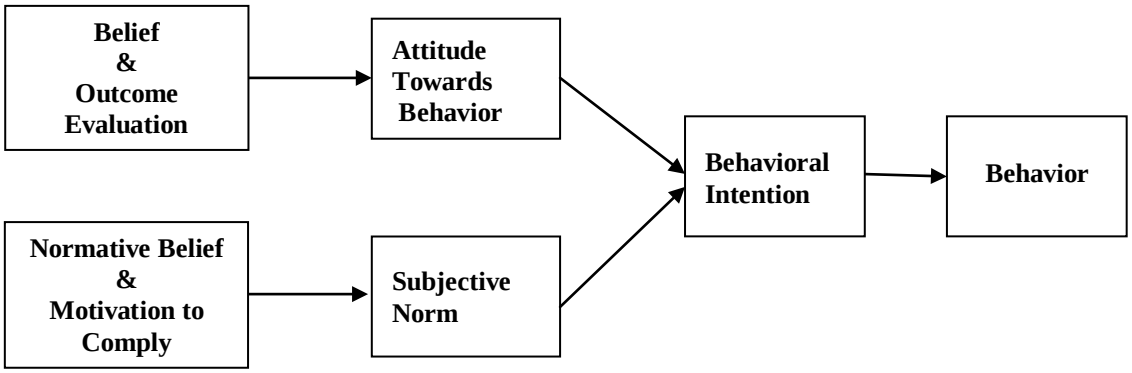

Figure 2.4: Theory of Reasoned Action
Source: Ajzen and Fishbein (1975)

Attitudes are made up of beliefs that an individual accumulates through direct experience or from outside information over his lifetime. However, only a few of these beliefs influence attitude. These are salient beliefs and they are the "immediate determinants of a person's attitude" (Ajzen and Fishbein 1980, 63). An attitude can be defined as the person's salient belief about whether the outcome of his action will be positive or negative. If the person has positive salient beliefs about the outcome, he will have a positive attitude about the behavior and vice versa, negative salient beliefs will produce a negative attitude. Hence, overall attitude can be expressed as the sum of beliefs about a particular behavior weighted by subjective evaluation of the associated expected outcomes.

Subjective norms are the person's belief whether their behavior would be accepted, encouraged, or promoted by relevant important people. The perception of the opinion of significant referent is weighted by the motivation to comply with the referent. Formally, overall subjective norm can be expressed as the sum of individual perception weighted by motivation assessments for all significant referents (Ajzen 1985). Both attitude and subjective norms directly influence intention and intention is a direct antecedent of behavior.

Sheppard, Hartwick and Warshaw (1988, 325) in their meta-analysis on TRA studies verified that the TRA had the predictive power to explain both intention and behavior in various contexts. They cited that the TRA has "received considerable and for most part, justifiable attention within the field of consumer behavior." The TRA has been

successfully applied in such diverse studies such as in the field of health (Michels et al. 1995; Vanlandingham et al. 1995; Wulferet and Wan 1995), eating at fast-food restaurant (Brinberg and Durand 1983), purchasing of toothpaste brand (Ryan 1982) and having a child (Crawford and Boyer 1985). Davis, Bagozzi, and Warshaw (1989, 983) concluded that TRA is "an especially well researched intention model that has proven successful in predicting and explaining behavior across a wide variety of domains."

However, there was no evidence in the literature review that TRA has been used to explain the behavioral intention to use forensic accounting services. Nevertheless, this theory is relevant to this study because it examines the impact of both attitudes and subjective norms, which have been proven as integral determinants of intention. Therefore, these two constructs may have a significant influence on the behavioral intention to use forensic accounting services. However, the focus of TRA is on individual intentions and the intention to use forensic accounting services is executed at the organization level. Therefore, the application of TRA is limited because it cannot account for contextual and control factors that are relevant in organizational decision-making. Furthermore, the TRA does not take into account threat perceptions, which may be useful for this study since forensic accounting services are used to avoid the threat of fraud.

Ajzen, Timko, and White (1982) argue that the TRA is limited in its application as it relies on self-reported information to determine attitude and this information may not be accurate as it is subjective. Furthermore, Ajzen and Fishbein (1975) stated that in order for the theory to predict accurately behavior, attitude and intention must be aligned to a common action, target, context and time, which is not easy to achieve. However, the greatest limitation of the TRA stems from the assumption that behavior is under volitional control. Irrational decisions, habitual actions, or any behavior that do not make logical use of information cannot be explained by this theory (Ajzen, Timko, and White 1982). To overcome this deficiency, perceived behavioral control was added to the TRA as an additional predictor of non-volitional behavior.

2.4.2 Theory of Planned Behavior

TRA was severely restricted in its application because it could only explain behaviors that are under volitional control. The Theory of Planned Behavior (TPB) is the extended version of TRA with the addition of a new construct. Perceived behavioral control was defined by Ajzen & Madden (1986, 457) as "the person's belief as to how easy or difficult performance of the behavior is likely to be". Perceived behavior control is determined by the total set of accessible control beliefs. Control beliefs are an individual's belief about the presence of factors that may facilitate or impede performance of the behavior (Ajzen, 2001). However, TPB infers that unlike attitude and subjective norms, perceived behavioral control could influence both behavior and behavioral intention (Madden, Ellen and Ajzen 1992). The diagram in Figure 2.5 below represents the model.

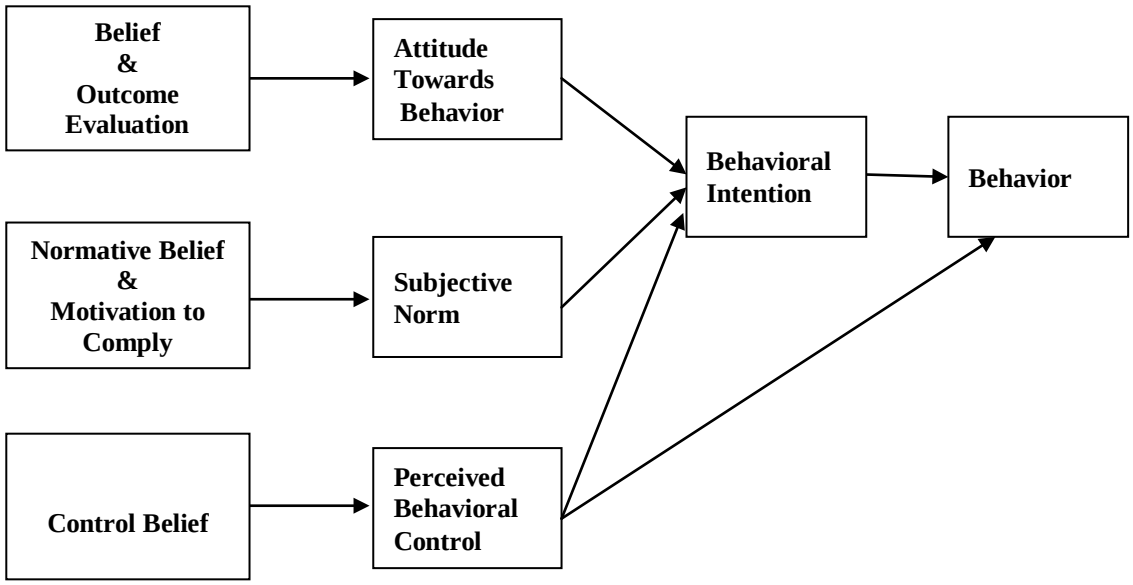

Figure 2.5: Theory of Planned Behavior
Source: Ajzen and Madden (1986)

Perceived behavioral control is an integral part of the theory of planned behavior because it can affect both intention and behavior. Conner and Armitage (1998) recommended that perceived behavioral control be dimensionalized into two differing factors. The first component, dispositional is termed as internal control factor and includes the amount of information skills, abilities, emotions and

compulsion the person has to perform a particular behavior (Ajzen 1988). This concept is similar to the concept of self-efficacy at the individual level. However, at the organizational level, this factor is expanded to include factors within the organization that may facilitate or interfere with the organizational intention to perform a particular behavior. The next component is the external control factor, which is similar to Kuhl and Beckmann's (1985) action control and labeled by Taylor and Todd (1995) as facilitating conditions. Fitch and Ravlin (2005) described this element as available resources and opportunities that may assist or hinder the performance of the behavior. Therefore, at the organizational level, external control factors are factors outside of the organization that may impel or impede the intention to perform a particular behavior.

Meta analytic reviews of TPB supports the predictive power of the three constructs in determining behavioral intention and actual behavior (Godin and Kok 1996; Conner and Armitage 1998; Sutton, 1998). TPB has been successfully used in diverse studies such as in the field of health (McClenahan et al. 2007; Wang 2005), pollution reduction (Cordano and Frieze 2000), bicycle helmet use (Lajunen and Rasanen 2004), ethical decision-making (Kurland 1996; Buchan 2005; Carpenter and Reimers 2005), adoption of IT (Harrison, Mykytyn, and Reimenschneider 1997), wastepaper recycling (Cheung, Chan, and Wong 1999) and buying organic food (Tarkiainen and Sundqvist 2005).

Although the TPB has been extensively used to study behavioral intentions, review of existing literature shows that it has not been specifically used to study the behavioral intention to acquire professional services including forensic accounting services. This study intends to fill this research gap by investigating the applicability of TPB in understanding the mechanism leading to the behavioral intention to use forensic accounting services in fraud detection and prevention.

However, in the meta-analytic review of the efficacy of TPB, Armitage and Conner (2001) found that only 39% of variance in intention and 27% in behavior could be explained by this theory. Therefore, the huge amount of variance, which is not accounted for, requires the need for additional constructs (Rutter and Quine 2002). Eagly and Chaiken (1993) reiterate that TRA or TPB has been considered

insufficient in explaining intention and behavior and have suggested a number of additional constructs that can be added to the theoretical models. Conner and Armitage (1998) in their review of TPB studies found empirical and theoretical evidence to support the addition of six constructs to the TPB. Even Ajzen (1991, 199) conceded that the model is open to further extension if important proximal constructs are identified:

> *"The theory of planned behavior is, in principle, open to the inclusion of additional predictors if it can be shown that they capture a significant proportion of the variance in intention or behavior after the theory's current variables has been taken into account."*

This study would use organization as a unit of analysis and TPB is restricted since it assumes there is independence in the decision-making process. External factors and contextual factors such as size, organizational type, and industry type may influence the decision to use forensic accounting services. These important constructs cannot be studied within the context of TPB. Furthermore, TPB does not take into account threat perceptions, which may be useful in predicting protective behavioral intention. Since the behavioral intention to use forensic accounting services is similar to protective health behavior, this study will explore the HBM model to gain further theoretical insights.

2.4.3 Health Belief Model

The Health Belief Model (HBM) is a health specific social cognition model that has adapted theories from behavioral sciences (Ajzen 1998). The original HBM was developed to understand the decision to use preventive health services in the public health system (Hochbaum 1958). The goal was to comprehend, explain, and ultimately increase the use of preventive public health services such as vaccines and screening programs. Since then, the model has been extensively applied and widely recognized to predict protective health behaviors including health services use (Abraham and Sheeran 2005). The main constructs of the HBM are perceived benefits, perceived barriers, perceived susceptibility, perceived severity, and cues to

action (Rosenstock, Strecher and Becker 1994). A diagram of the HBM is presented in the figure 2.6.

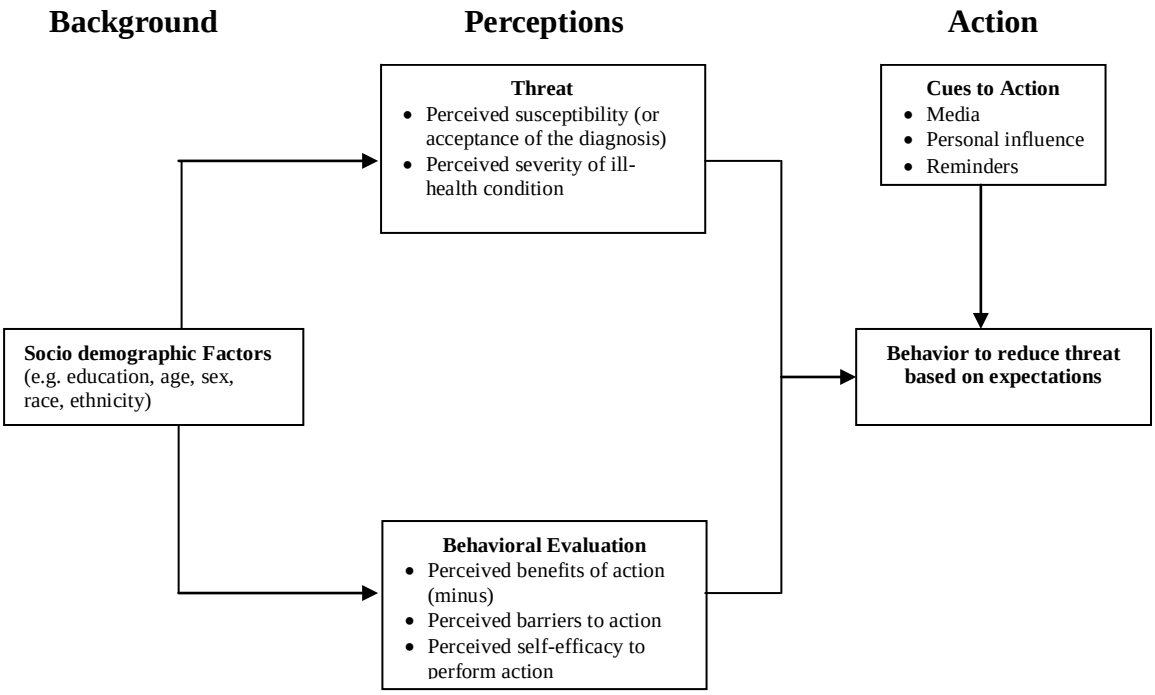

Figure 2.6: Health Belief Model
Source: Rosenstock, Strecher, and Becker (1994)

The theoretical basis of HBM is that people feared health problems. So, health actions are motivated in relation to the degree of fear (threat perceptions) and the expected fear reduction potential of the action (behavioral evaluations). Threat perceptions play an integral role in arousing and sustaining the motivation to engage in protective health behaviors (Abraham and Sheeran 2005). The key incentive is to avoid the adverse conditions that would be contracted if the health action is not taken. The two constructs of threat perceptions are perceived severity and perceived susceptibility.

Perceived severity is the individual's subjective feelings that form the beliefs on the seriousness of the health problem (Rosenstock 1974). The individual cognitively appraises the health problem and weighs the consequences of succumbing to this problem. The subjective evaluation of severity would include medical complications,

impact on family, financial burden and social relations (Rosenstock 1974). The rationale of engaging in the recommended health action is to avoid these negative consequences. Therefore, the higher the level of perceived severity of the health problem, the likelihood of undertaking the health action increases.

On the other hand, perceived susceptibility is the individual's beliefs on the possibility of contracting a health problem. Rosenstock (1974) concured that people's acceptance that they could succumb to a health condition is highly varied. However, the individual who feels that there is a high likelihood of being in an adverse condition, would take preventive actions to avoid it. Consequently, the higher the level of perceived susceptibility to the health problem, the higher is the possibility of engaging the protective health action.

HBM recognizes behavioral evaluation, which comprises of perceptions of benefits and barriers as an integral component of health behavior (Conner and Norman 1995). Perceived benefits are the beliefs on the positive outcomes of performing a health action to offset the perceived threats. Therefore, the individual evaluates the effectiveness and advantages of the health action in reducing the threat. Whilst the individual may form beliefs that the health action is greatly beneficial, at the same time, the beliefs on the detriments of the action may emerge. The barriers towards performing the action are for example high cost, time consuming, inconvenience, pain, and unpleasantness (Rosenstock 1974). These negative facets influence and reduce the motivation to engage in the health action. The conflicting nature of perceived benefits and barriers indicate that an individual would decide on the health action if the expected fear reduction potential of the action would outweigh the practical and psychological obstacles of engaging in the action. The possibility of the health action increases when perceived benefit minus perceived barrier produces a positive net benefit.

Cues to action are events that trigger and activate the health action. This component is experienced by the individual as prompts or reminders and includes both internal and external cues. The cues to action range from physical symptoms, advertisements, health campaigns interpersonal interactions, personal advice, and postcard reminders (Rosenstock 1974; Janz and Becker 1984). These cues directly affect behavior and

may increase the likelihood of engaging in the health action (Rosenstock 1974). In conclusion, the mechanism of HBM includes the product of perceived susceptibility and severity to form threat perceptions. Behavioral evaluation involves the comparison between perceived benefits and barriers. The combined quantum of threat perceptions and behavioral evaluation is indicative of the motivation level to perform the health action. In addition, cues that act as trigger mechanisms activate the performance of the health behavior.

Becker (1974) reviewed seventeen HBM studies published prior to 1974. The meta-analysis found the significant ratio ordering of the HBM constructs across differing study designs, populations and health actions. Results revealed that perceived susceptibility had the highest ratio (91%), followed by severity (80%), barriers (80%) and benefits (73%). Jans and Becker (1984) in a similar meta-analysis of HBM studies identified perceived barrier (91%) as the most influential for predicting and explaining health related behaviors. The next highest ratios were for perceived benefits (81%) and perceived susceptibility (77%). Perceived severity had the lowest ratio of 59%. The results of both reviews acknowledge the significant predictive power of all the HBM constructs in relation to the nature of the protective health behavior.

However, Harrison, Mullen, and Green (1992) in their meta-analysis of sixteen HBM studies attested that the effect sizes of the four constructs were weak. Furthermore, Abraham and Sheeran (2005) have also reported the limited predictive power of HBM. Bandura (1997) questions the value of perceived threat in HBM. He argued that the relationship between threat perception especially perceived severity and health action is very weak. Therefore, self-efficacy was subsequently incorporated into HBM (Rosenstock, Strecher and Becker 1988) to increase its predictive power. Self-efficacy is the individual's belief in his ability to successfully execute a given behavior (Bandura 1977).

Furthermore, HBM faces conceptual problems due to the lack of unambiguous operational definitions and inconsistent application of constructs (Armitage and Conner 2000). The main contention is the conceptualization of cues to action, which can be very diverse in nature and difficult to evaluate. Therefore, this construct has

been omitted in many HBM studies (Harrison, Mullen, and Green 1992). Moreover, the relationships between the constructs have not been explicitly spelt out and the combinational rules between constructs lack adequate guidelines (Abraham and Sheeran 2005). Quene, Rutter, and Arnold (1998) researched cycle helmet use and HBM accounted for 18% of the variance in behavior. However, when intention was included in the model, HBM accounted for 22% of the variance in intention and 40% in behavior. Therefore, another criticism of HBM is that behavior is not moderated by intention.

In addition, the model does not take into account other major determinants of health action such as the positive consequences of not engaging in the behavior (Munro et al. 2007). Furthermore, environmental and economic factors that may influence health action is also disregarded by the model (Wang 2005). Another major problem with HBM is that the influence of social norms, which is distinctively different from cues to action, has been ignored (Vanlandingham et al. 1995). Moreover, the premise of HBM is for volitional behavior, therefore, habitual, emotional and non-rational behavior cannot be explained by HBM.

The behavior to prevent and detect fraud can be compared to the behavior to prevent and screen for illness. The similarity is that both are protective behaviors that assume the anticipation of a negative outcome and the desire to avoid this outcome or reduce its impact creates motivation for self-protection. In this study, the use of forensic accounting services is the protective measure that can be used to avoid the negative outcome of fraud. Likewise, the use of preventive health services is the protective measure to avoid a health threat. The motivation to use forensic accounting services and protective health services arises from the same expectation that this action can reduce the likelihood or severity of harm. Based on these similarities, this study believes that HBM is a relevant model that could be applied to predict the behavioral intention to use forensic accounting services.

However, since this study is done in an organizational context, the application of this model is limited by the lack of consideration on external, contextual and control factors. Furthermore, the influence of subjective norms on behaviors is not addressed by HBM. At the organizational level, the influence of stakeholders on organizational

decision-making is significant and must be taken into account (Hill and Jones 1992). Since the intention to use forensic accounting services by the organization is a consumer behavior, theories in the marketing literature could also provide useful insight and guidance to explain this intention.

2.4.4 Hierarchy of Effects Model

The Hierarchy of Effects Model (HOE) explains that consumers go through a series of sequential steps that culminates in purchasing a product. The sequence starts with the cognitive stage, followed by the affective stage and ends in the behavior stage. The model is depicted in Figure 2.7.

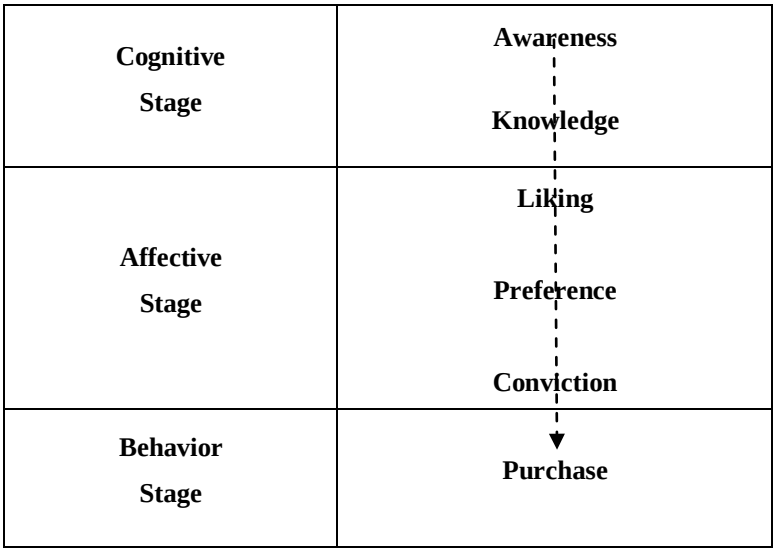

Figure 2.7: Hierarchy of Effects Model
Source: Lavidge and Steiner (1961)

The formation of awareness and knowledge is the cognitive stage and this model suggests that this stage commences once the consumer is exposed to the product through an advertisement. The next stage is the affective stage where the consumers develop a liking, preference, and conviction of the product. The advertising effect occurs overtime and may take time for the final stage, which is the behavioral stage to occur. According to HOE, consumers must go through each step sequentially Lavidge and Steiner (1961).

HOE model has been successfully applied in studies that examine the effectiveness of advertising on consumer purchasing behavior. Some examples of these studies are influence of marketing media on banking customers intention to purchase (Page and Luding 2003), corporate sponsorship of university's sport team (Lavidge and Steiner 1961) and the effect of sponsorship on purchaser intention (Hoek et al. 1997). At the organizational level, Petroni and Rizzi (2001), and Hofmeyer (2005) have integrated the HOE with other innovation adoption theories to investigate the factors that influence the intention to adopt an innovation. There is no evidence in the literature on the application of HOE model to the behavioral intention to use professional services in particular forensic accounting services.

This study infers by using the HOE model as a basis that the organization first considers to use forensic accounting services in the cognitive stage. In this stage, the organization becomes aware of forensic accounting services through external factors. Awareness of forensic accounting services is the accumulated service related experiences gained through promotional activities such as seminars, courses, newsletters, and pamphlets by accounting firms and professional bodies. This stage is important because forensic accounting service is a relatively new field and only through awareness, organizations can gain knowledge that would lead to the formation of an attitude. If a positive attitude is developed, the organization will move to the behavioral stage and use forensic accounting services. Therefore, this marketing model provides the theoretical background to the conceptual model that will be developed for this study.

2.5 Critical Review of the Theories

The thesis began by describing the importance of understanding the factors influencing the behavioral intention to use forensic accounting service in fraud detection and prevention. Theory-based predictors, especially cognitive factors, could provide a systematic basis for explaining the determinants of this behavioral intention. The four models that have been discussed are compared here to conceptualize the key constructs that could be used towards the development of the

theoretical framework for this study. In spite of the fundamental differences between the models, they do share commonalities. This review will point out the similarities and differences of these models and clarify their strengths and weaknesses.

The HOE model, taken from the marketing literature has been included in this study because the behavioral intention to use forensic accounting services is a consumer purchase intention. The HOE model incorporates an awareness concept, which is not emphasized in the other models. Awareness leads to the seeking of information about the product and the evaluation of this information leads to the formation of an opinion or attitude.

Although awareness is not emphasized in the TPB and TRA, salient beliefs are also formed either from direct experience or from outside information. Salient beliefs are the cognitive component of attitude, or what is often referred to as knowledge. In view of this, what the individual knows or thinks he knows about the consequences of performing the behavior are gained through awareness and this is the prerequisite in the formation of salient beliefs. The formation of attitude will then affect both the behavioral intention and behavior.

In the HBM, perceived benefits are the beliefs on the advantages of performing the behavior whilst perceived barriers are the beliefs on the costs of taking the same action. The perceived benefits and perceived barriers constructs are also formed through evaluation of information. The assessment of the positive and negative consequences that may result from taking a particular health action shapes these perceptions. Hence, even though the awareness construct is not included in HBM, it can be concluded that awareness will lead to the formation of both perceived benefits and perceived barriers and this in turn will influence the likelihood of action.

Therefore, in HOE, awareness is an explicit construct but in TRA, TPB, and HBM, awareness is implicit and subsumed into perceived benefits, perceived barriers and attitude. In view of the above discussions, it can be concluded that the sequential stages of HOE can be linked to be part of TRA, TPB, and HBM. Therefore, the inclusion of awareness as an extension to the other models would provide additional integral information to the formation of behavioral intention. The subsequent

discussions will concentrate on TRA, TPB, and HBM because these three models are from the same behavioral science literature.

The HBM, TRA and TPB are established social cognitive models rooted in expectancy-value theory. The assumption of all these theories is that an individual would engage in behaviors that have a high expectancy value. The major advantages of these theories are their clear theoretical framework. Their succinct conceptual approaches are maps that guide construct definition and interpretation of results. All three models have been extensively used in predicting behavioral intention in protective health behavior (Noar and Zimmerman 2005). Table 2.5 compares the constructs of the three theories.

Table 2.5: Comparison of health behavior theories
Source: Noar and Zimmerman (2005)

Concept	Health Belief Model (HBM)	Theory of Reasoned Action (TRA)	Theory of Planned Behavior (TPB)
Attitudinal beliefs: Engaging in the behavior likely if positive outweighs the negative	Benefits, barriers,	Evaluation of beliefs/attitudes	Evaluation of beliefs/attitudes
Self-efficacy: confidence in one's ability to perform the behavior	Self-efficacy	—	Perceived behavioral control
Normative beliefs: social and peer support a change in health behavior	Cues to action: education, symptoms, media	Subjective norms	Subjective norms
Risk-related belief: person feels there will be a negative outcome if he engages in unhealthy behavior	Perceived threat, susceptibility, severity	—	—
Intention/commitment/ planning: person has set goals and made a decision regarding behavior	—	Behavioral intentions	Behavioral intentions

The essential components of all three theories are beliefs. TRA and TPB include salient and normative beliefs whilst HBM emphasizes the role of threat perception and behavioral evaluation beliefs. The table indicates that attitudinal beliefs are the major component in all theories and if the positive beliefs outweigh the negative, the possibility of engaging in the behavior increases. In TRA and TPB, attitude is formed through evaluation of salient beliefs. In HBM, perceived benefits and barriers are noted to be the equivalence of attitudinal beliefs. Therefore, researches who have combined HBM and TRA in their theoretical framework have omitted either attitude or perceived benefits/barriers. Nevertheless, Vanlandingham et al. (1995) argued that the attitude construct in TRA is too broad and it would be more beneficial to have a clearer indication of the kind of beliefs that influence behavior. This could be achieved by adding perceived benefits and perceived barriers as direct antecedents of attitude. Therefore, this form of integration could add value to the model and provide better explanatory power of the formation of both attitude and intention.

Self-efficacy was included into HBM by Rosenstock, Strecher, and Becker (1988). Shewarzer (1992) examined this construct in his review and concluded that self-efficacy enhanced the predictive power of HBM. However, self-efficacy is not applicable in organizational decision-making. Perceived behavioral control from TPB is compared to be similar to self-efficacy in HBM. However, unlike self-efficacy, perceived behavioral control has been separated into two distinct control processes. Taylor and Todd (1995) have labeled the two components as internal and external control factors. Bandura (1982) explained that self-efficacy and control factors bear little or no resemblance to each other. Therefore, organizational control factors from TPB could be incorporated into the theoretical framework whilst self-efficacy has to be eliminated.

The TRA and TPB acknowledge that the social influence of significant others is important in forming behavioral intention. The normative belief factor that takes into account the opinions of important social contacts is named as subjective norm in TPB and TRA. Noar and Zimmerman (2005) compared subjective norms to cues to action in HBM. However, cues to action in HBM is not a belief component. Instead, it has been defined as internal and external factors that trigger the motivation to engage in a health action. For example, pain is a cue to action factor but could never

be a subjective norm factor. Therefore, HBM lacks the integral construct of subjective norms. Furthermore, incorporating subjective norms into perceived benefits or perceived barriers is difficult given the underlying cost/benefit assumptions of HBM. Although subjective norms could be an important determinant of organizational decision-making, HBM is unable to incorporate the potential effects of this construct.

Threat perception beliefs are the unique contribution of HBM, which is not found in TRA and TPB. The perception of severity of threat and susceptibility to threat is an important component of protective behavior. Fishbein and Middlestadt (1989) argued that the effect of perceived severity and susceptibility could be indirectly captured by the components of TRA. Furthermore, they insist that these constructs do not consistently influence behavior. However, Vanlandingham et al. (1995) counter argued that even though perceived severity could be included in TRA under the attitude construct, perceived susceptibility would certainly not fit into TRA's rubric. Perceived susceptibility is the assessment of one's risk and is distinctly different from the evaluation of beliefs in TRA and TPB's attitude construct. Furthermore, a person who considers the consequences of threat are severe would still not choose to engage in the protective health action if he thinks the risk of threat to him is minimal. Therefore, there are valid reasons to believe threat perceptions could play an integral role in predicting protective behaviors. However, TPB and TRA are unable to incorporate the potential effects of both perceived severity and perceived susceptibility.

Behavioral intention is found in TRA and TPB but not in HBM. TRA and TPB studies have proven that intention is a powerful predictor of behavior. HBM studies that have included intention in their conceptual model also agree on the significant mediating effect of intention on behavior (Quine, Rutter, and Arnold 1998; Poss 2001; McClenahan et al. 2007). In addition, intention was found to have a higher correlation with behavior than the original constructs of HBM (Poss 2001). Therefore, the predictive power of HBM could be improved if intention is incorporated in the model.

Another major difference between the theories is the causal ordering between constructs. TRA and TPB clearly state the causal ordering of the constructs but HBM lacks proper guidelines. Rosenstock (1974) suggested that perceived severity and perceived susceptibility scores should be multiplied but Abraham and Sheeran (2005) proposed that the scores should be added. Becker (1974) suggestsed perceived benefits and perceived barriers should be compared and net benefits calculated whilst Weinstein (1988) argued that the two constructs should be treated as independent constructs. Subsequently, there appears to be varied operationalization and measurements of the HBM model.

In conclusion, although there are similarities between the models, all four models also have their unique characteristics. While the stages in HOE are similar to the other cognitive models, the distinct difference is the incorporation of awareness. This construct may be important for this study because forensic accounting services is relatively new in Malaysia. All the three expectancy-value models; HBM, TRA, and TPB view behavior to be affected by expected costs and benefits associated with risk reduction. In the HBM, this cost-benefit dimension is labeled benefits/barriers; in the TRA and TPB, it is subsumed under the concept of attitude.

TRA and TPB both include social influence on behavior, specifically the approval from significant others. The sanction of organizational stakeholders is a vital consideration in organizational decision-making. Even though TRA and TPB have the advantage of the superior addition of subjective norms influence, TRA omits a potentially important concept integrated in the TPB, perceived behavior control. The perceived behavioral control construct could be an important predictor of intention because this study is conducted at the organizational level.

Both TRA and TPB do not incorporate two prospective important constructs, the degree to which the individual feels at risk or perceived susceptibility and the individual's beliefs on the seriousness of threat or perceived severity. Perceived severity may help distinguish organizations that perceive the cost of fraud as low and high whilst perceived susceptibility may help to distinguish organizations that have accepted its vulnerability to fraud and those which have not. In addition, HBM lacks

the intention construct, which has been proven by TRA and TPB as an important antecedent of behavior.

The critical review highlights the lack of key constructs in each model and points towards the potential value of developing an integrative conceptual framework to predict the behavioral intention to use forensic accounting services in fraud detection and prevention. In addition, the theoretical limitations and issues of individual theories provide strong support for the conceptualization of a comprehensive yet parsimonious model. This conceptual model could then be empirically tested through research and may explain a greater amount of variances for this particular behavioral intention.

2.6 Selected Research on Protective Behavior Intention

The HBM, TRA, and TPB have been successfully applied to explain a wide range of health-protective behavior. According to Weinstein (1993, 324), such theories "contain at least a grain of truth (so that) empirical tests typically yield some degree of confirmation, enough to keep the theory under scrutiny from being rejected". Weinstein (1993) therefore advocated that these theories be compared against each other to establish which models or constructs are more influential than others are in order to understand specific protective behaviors. A number of researchers have taken up this challenge and compared these models in their studies (Vanlandingham et al. 1995; Wulferet and Wan 1995; Lajunen and Rasanen 2004; Wang 2005; McClenahan et al. 2007; Simsekoglu and Lajunen 2008).

However, even as more researchers are directly comparing and testing multiple models, others argue that it is possible to instead integrate constructs from different models to explain behavior more fully. Theories can be combined if they partially overlap and have common conceptual constructs that may be nominally different yet functionally analogous (McClenahan et al. 2007). Another method is to select the most salient constructs from varying theories and combine them into an integrated model (Noar and Zimmerman 2005). The potential value of integrative models is that

certain construct combinations would significantly increase the proportion of variance explained (Weinsten and Rothman 2005). In view of this, there seems to be valid reasons for theoretical integration to improve the predictive power of protective behavior intention. There are two ways to combine theories; the parsimonious model adopts only the crucial constructs (Risker 1996; Poss 2001; Roden 2004; Ham 2005), whilst the comprehensive model includes all potential constructs into the model (Doukas, Localio, and Li 2004; Wang 2005).

McClenahan et al. (2007) conducted a comparison study of HBM and TPB to find out which model had better utility and efficiency in predicting preventive health behavior. The results of the SEM analysis revealed that TPB was the better model in predicting intention. However, the qualities of the models were almost parallel with the TPB accounting for 50% of variance in intention and 22% on behavior whilst HBM accordingly explained 56% and 20%. The most significant predictor of behavior intention across both models was self-efficacy. The researchers concluded that their results were similar to previous studies, which favored TPB over HBM. They reasoned that this might be because there is a lack of proper guidelines on the combinational rules for HBM constructs whilst for TPB rules are clear. The researchers proposed that the predictive powers of the differing conceptual models could be increased through the integration of these well-established theories.

Simsekoglu and Lajunen (2008) conducted a study to compare the predictive power and data fit of HBM and TPB model. Attitudes and subjective norms from TPB was found to be significant predictors of seat belt usage whilst for HBM the significant constructs were perceived benefits and perceived barriers. Structural Equation Modeling model analysis revealed that the TPB model was a good fit to the data whilst the HBM model was a poor fit. Furthermore, TPB explained a greater amount of variance on the behavior to use seat-belt. The greater predictive power of TPB compared to HBM supports the results of previous study by McClenahan et al. (2007).

Nejad, Wertheim, and Greenwood (2005) compared the utility of TPB and HBM to predict dieting and fasting behavior. The TPB model explained 67% of the variance in intention and the attitude construct was the most significant predictor of intention.

In the HBM model, perceived benefits, perceived barriers, and perceived susceptibility were found to be significant predictors of behavior. The study also tested a modified HBM using intention and the results showed that the variance explained by the HBM model increased significantly to 57%. They recommended further modification of the models to increase their predictive powers.

Vanlandingham et al. (1995) applied the HBM (with self-efficacy) and TRA to an analysis of unsafe health behavior among individuals living in a high-risk area. The researcher compared this two models using Bayes Information Criterion (BIC) approach and found that both models had good utility even though TRA is the better model. According to Vanlandingham et al. (1995), the greater success of TRA is due to its accommodation of normative influence. The only non-significant construct was self-efficacy in HBM. The results provided strong support for TRA's claim that subjective norm is an integral component of the behavioral intention model. They contended that the HBM constructs of perceived severity, perceived benefits, and perceived barriers are subsumed in the attitude construct in TRA. Although they agreed that both HBM and TRA provide useful frameworks for examining threat prevention behavior, they argued that there is much overlap between the two theories.

Wang (2005) in her study compared the ability of three theories, the HBM, TRA, and SCT (Social Cognitive Theory), to predict preventive health measure use. The theories were combined into a comprehensive model to predict behavior. Overall, the findings indicated that HBM and TRA are valuable theoretic models for studying preventive health behavior. This study also identified perceived barriers, cues to action, personal attitude, and intention as the most influential predictor of health behavior. Wang notes that these three theories are conceptually similar and recommends the elimination of parallel constructs to create a more parsimonious model.

Ham (2006) conducted a study to understand factors that influence the intention to perform a health action. The parsimonious theoretical model (Figure 2.8) derived from the combined Health Belief Model and Theory of Reasoned Action successfully explained 41% of the variance in preventive health intention. However, the model

could only explain 26% of the variability of past experience. Therefore, the model was more efficient in predicting future intentions. Perceived susceptibility, perceived barriers, self-efficacy, and subjective norm from the model were significant predictors of the intention to perform the health action. In developing the model, Ham (2006) argued that perceived benefits and barriers from the HBM were analogous to attitude from the TRA. Therefore, attitude was not included in the model to maintain parsimony and avoid duplication of constructs.

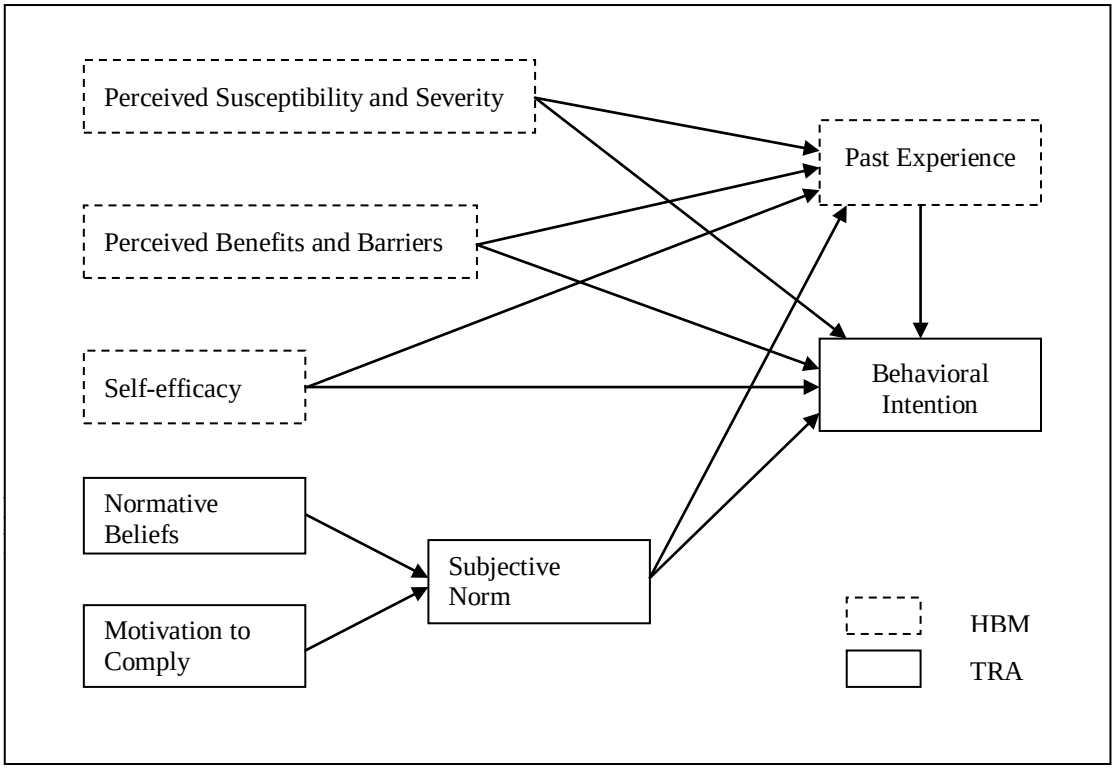

Figure 2.8: Combined Health Belief Model (HBM) and Theory of Reasoned Action (TRA) by Ham (2006).

Poss (2001) in her study on behavior intention to use a threat detection measure integrated the HBM and TRA to form a new theoretical model. The model (Figure 2.9) combined salient constructs and eliminated equivalent constructs to retain parsimony. Poss (2001) argued that perceived barriers and perceived benefits from HBM are similar to behavioral beliefs from TRA. Thus, both perceived barriers and perceived benefits were omitted from the model. The remaining concept, behavioral beliefs, was operationalized utilizing the well defined TRA guidelines. Analysis of logistic regression data revealed that the integrated model successfully predicted both

intention and behavior. The constructs that best predicted intention include cues to action, subjective norm, perceived susceptibility, and attitude. Therefore, the author concluded that constructs from both TRA and HBM are integral in predicting intention.

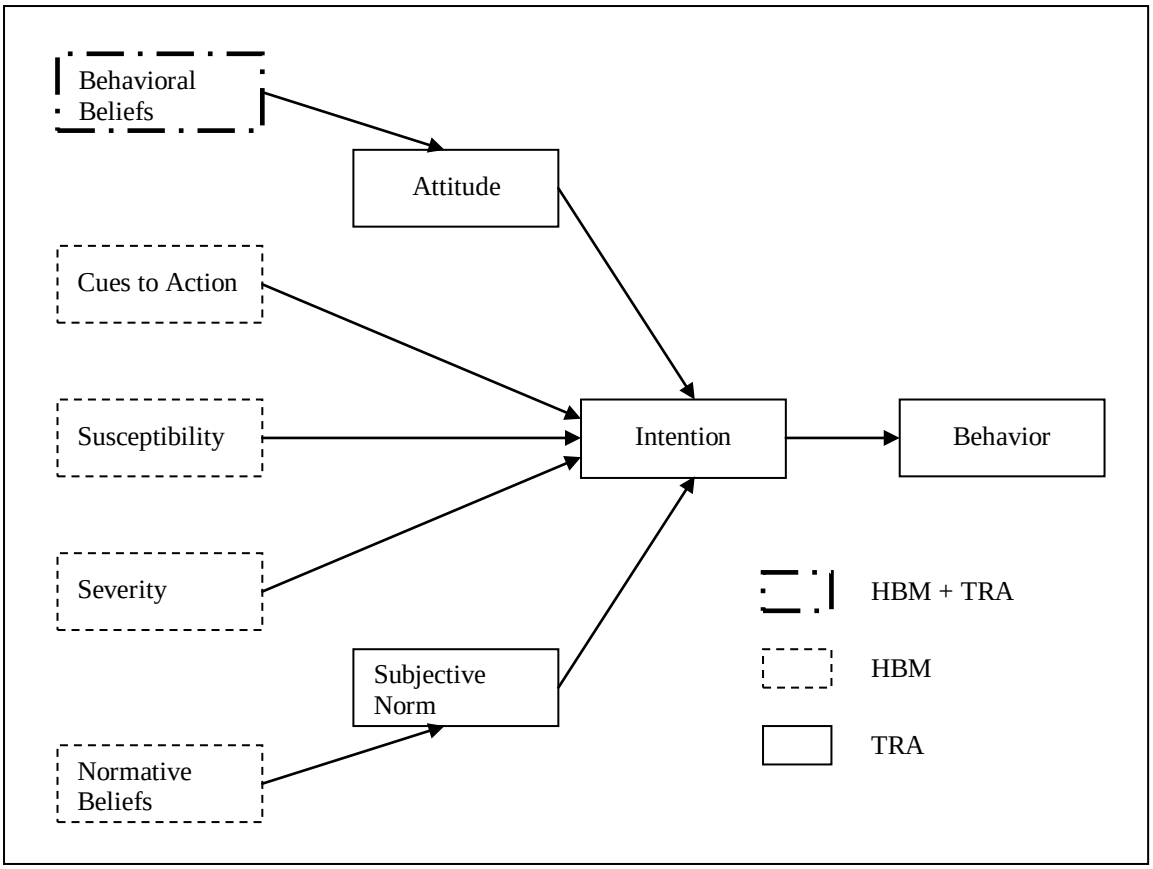

Figure 2.9: Combined Health Belief Model (HBM) and Theory of Reasoned Action (TRA) by Poss (2001).

Deroche et al. (2009) studied the social cognitive determinants of the intention to wear safety gear. The study applied both the original TPB and an extended TPB with the inclusion of perceived susceptibility and perceived severity in the conceptual framework (Figure 2.10). The results revealed that incorporating perceived severity and perceived susceptibility incrementally added to the proportion of variance with the final model explaining 46% of the behavioral intention. The researchers concluded that the development of integrative models to predict intention is an important enterprise.

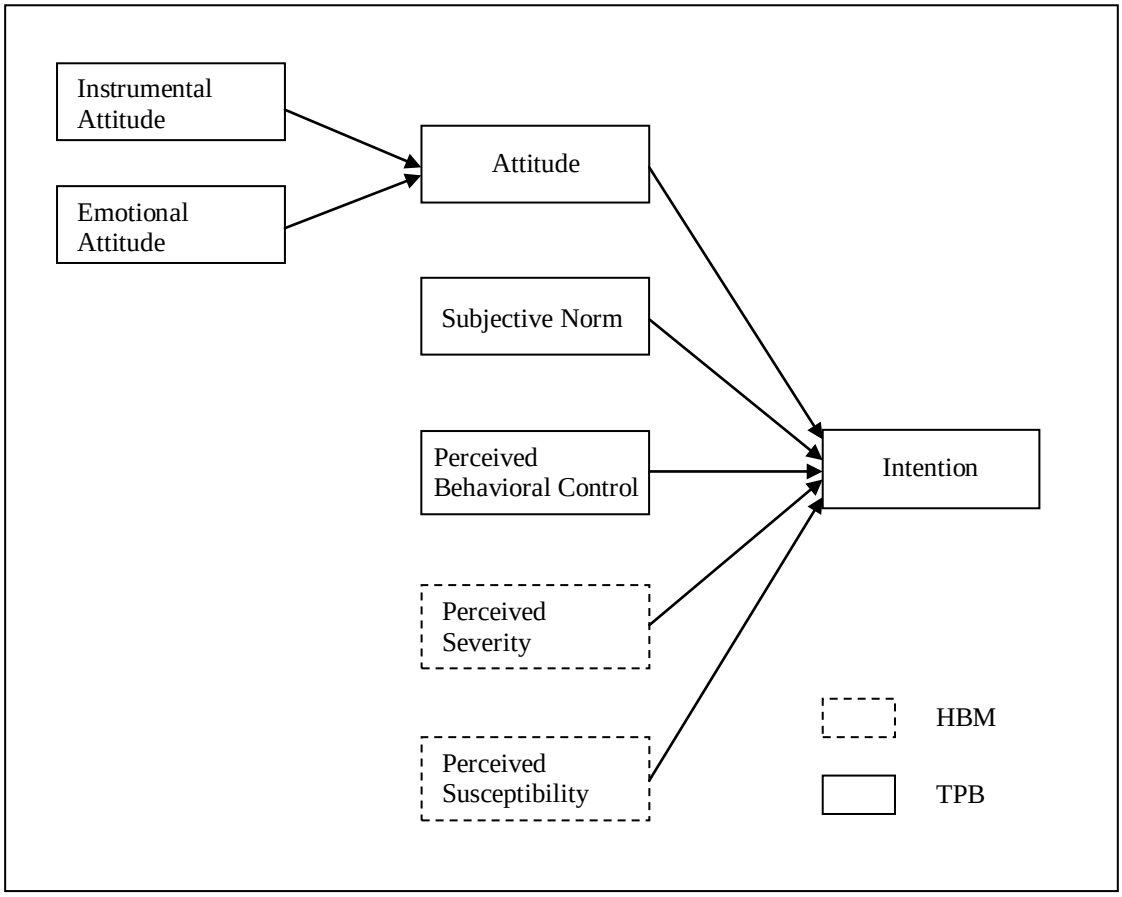

Figure 2.10: Combined Theory of Planned Behavior (TPB)and Health Belief Model (HBM) by Deroche et al. (2009)

This review of protective health behavior studies revealed that the value of integrative model is widely advocated and acknowledged. This is line with the recommendation of Schmiege and Klein (2009) that the focus of theory development should be the extension and integration of well-established theories. Furthermore, the increase in the proportion of variance explained would contribute towards better understanding and explanation of the behavioral intention. Therefore, this study would take up the challenge of selecting the most salient constructs from HBM, TRA, TPB, and HOE and strategically combine these constructs. The eventual goal is the development of a model with the best utility and efficiency to predict the behavioral intention to use forensic accounting services in the detection and prevention of fraud by large Malaysian companies.

2.7 Studies Related to Ethical Decision-Making

Whilst the intention to use forensic accounting services in fraud detection and prevention has been established as a protective behavioral intention, it can also be interpreted as an ethical intention. The rational is that since committing fraud is an unethical behavior the decision to utilize a strategy that could prevent or detect this unethical behavior would be an ethical decision-making. According to Krummeck 2000, 269), 'commitment to a zero tolerance towards fraud' is reliant on ethical considerations. He also emphasized that ethics provides both the foundation and building blocks in the selection and utilization of fraud prevention and detection strategies. To gain further insight about the drivers of ethical decision-making, review of relevant selected studies in this area will be discussed.

Ford and Richardson (1994) in their meta-analysis of empirical ethical decision-making studies commented that there was a dearth of theoretical based studies. An exception quoted was Randall and Gibson (1991) who utilized TPB to predict ethical decision-making in the medical profession. Randall and Gibson (1991) argued that rather than developing specialized theories to explain unethical decisions, it is more feasible to use well-established social cognitive theories such as TPB. Numerous ethical decision-making researchers successfully trailed the precedent set by this study.

Randall and Gibson (1991) reported that the TPB could explain a significant amount of variation in the ethical intention of medical professions. Attitude explained the majority of the variance followed by subjective norms. However, perceived behavioral control failed to contribute towards the variance. They believed this is due to the instability of the constructs' items ($\alpha = 0.64$) and the fact that this particular ethical intention is under volitional control. Therefore, they assert that the perceived behavioral control construct may play a vital role in predicting other unethical intentions, which are not volitional.

Kurland (1996) applied both the agency theory and modified TPB with moral obligation to study the ethical intention of financial service professionals. The result indicated that the modified TPB explained 58% of the variance in the behavioral

intention. All the TPB constructs except subjective norm significantly predicted intention. However, none of the agency theory constructs was significant. The results supported the utility and efficacy of TPB in ethical decision-making studies.

Gibson and Frakes (1997) examined unethical decision-making by chartered public accountants' (CPA). The researchers argued that ethical intention and behavior were equivalent to other types of intention and behavior. Therefore, TRA from the social cognitive theory can be applied into ethical decision-making studies. The results of the study supported the argument whereby all the constructs significantly predicted the CPA's unethical decision-making.

Cordano and Frieze (2000) modified the TPB with past behavior to examine the pollution reduction preference of environmental managers. The model fit the data well whereby all the constructs had significant path coefficient to intention. However, the path coefficient of the perceived behavioral control construct was negative. They explained, this discrepancy implies that environmental managers with limited authority had significantly higher ethical intention. The study concluded that the TPB provides a valuable foundation for future ethical decision-making research.

Carpenter and Reimers (2005) investigated corporate managers' decision-making to violate the generally accepted accounting principles (GAAP). The research utilized TPB to predict the ethical decision intention of corporate managers. The researchers emphasized that since the study is set in organizational context, the attitudes of managers are shaped by the organizational culture and this is an indication of the tone set by top management. The results revealed that all the TPB constructs explained a significant amount of the variance in ethical behavior intention. Attitude is the most significant predictor of intention followed by subjective norms. The researchers claim that both these constructs are influenced by organizational factors. Positive attitude is formed by the 'tone at the top' set by the company executives whilst subjective norm is aided by a corporate culture that promotes openness and cooperation. These two factors would significantly decrease unethical decision intention. They concluded that research utilizing the TPB could enhance the capacity to understand, explain, and predict ethical behavior intention in an organizational setting.

Buchan (2005) studied the ethical decision-making of public accountants by applying an extended TPB (Figure 2.11). Organizational ethical climate and moral sensitivity were added as direct antecedents of intention. The study intended to understand personal, social, and organizational factors that influence ethical intention. The results indicated that attitude has a significant influence on ethical intention. In addition, the significant influence of social factors in attitude formation was uncovered. Buchan (2005) concluded that the TRA instead of TPB could provide a functional framework to predict future ethical decision intention.

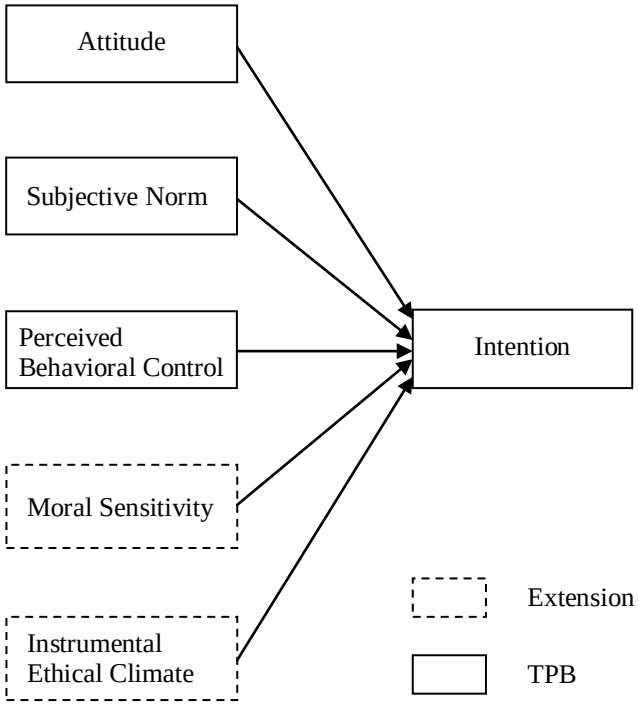

Figure 2.11: Extension of Theory of Planned Behavior (TPB) in the public accounting profession ethical decision-making
Source: Buchan (2005)

Flannery and May (2000) examined individual and situational factors affecting environmental ethical decision-making. Their theoretical framework (Figure 2.12) extended the TPB to include moral obligation. The study believed that TPB would be able to capture both individual and contextual factors influencing manager's ethical intention. The perceived behavioral control construct differentiated between internal and external control factors. Self-efficacy was clarified as an individual dispositional factor and labeled as an internal control factor. The external control factor was

explained as situational factors in the organization. Financial cost and ethical climate were chosen as the relevant external control factors. Analysis of the survey data revealed that the individual factors of attitude and subjective norms significantly predicted ethical intention whilst the significant organizational factors were ethical climate and financial cost. The most influential predictor of intention was financial cost, an external control factor. The researchers concluded that examining both individual and contextual factors were integral towards understanding organizational ethical decision intention.

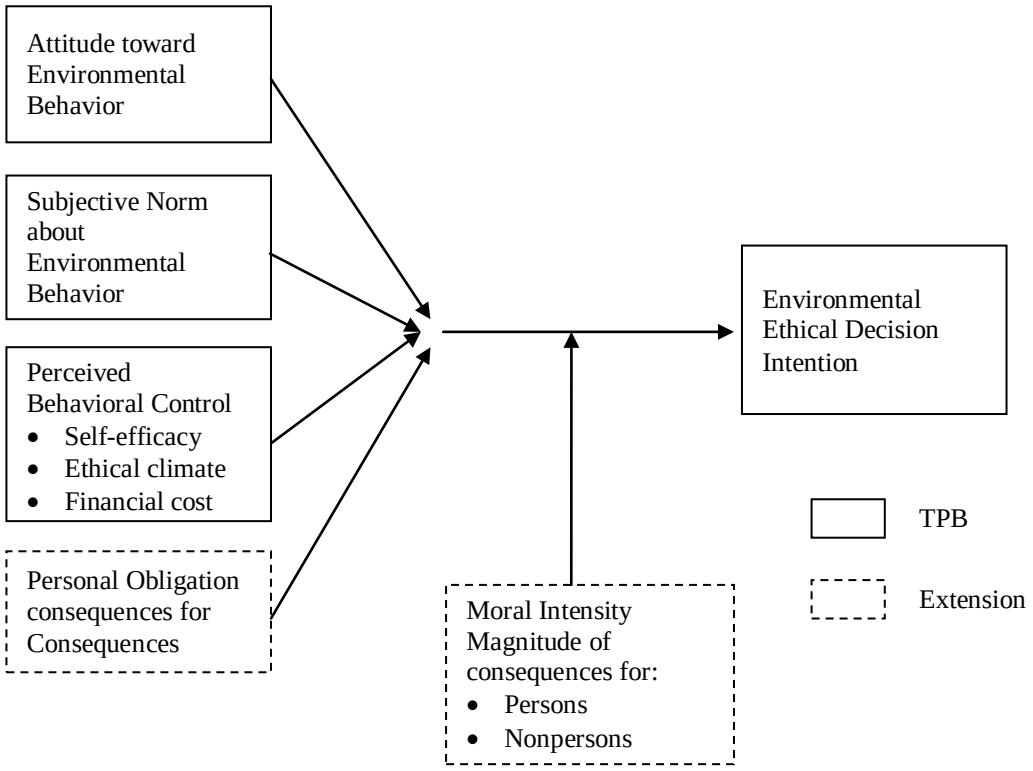

Figure 2.12: Extension of Theory of Planned Behavior (TPB) in environmental ethical decision-making.
Source: Flannery and May (2000)

Gillet and Uddin (2005) examined the intentions of chief financial officer's (CFO) in fraudulent financial reporting. The study applied the TRA and included organizational contextual factors in the conceptual framework (Figure 2.13). The model explains an impressive 86.6% of the variance in intention for fraudulent financial reporting. The significant predictors of intention were company size, attitude, and subjective norm although the path coefficient for subjective norm was in

the opposite direction. The results of this study support the utility of TRA and organizational contextual factors in predicting ethical decision intention.

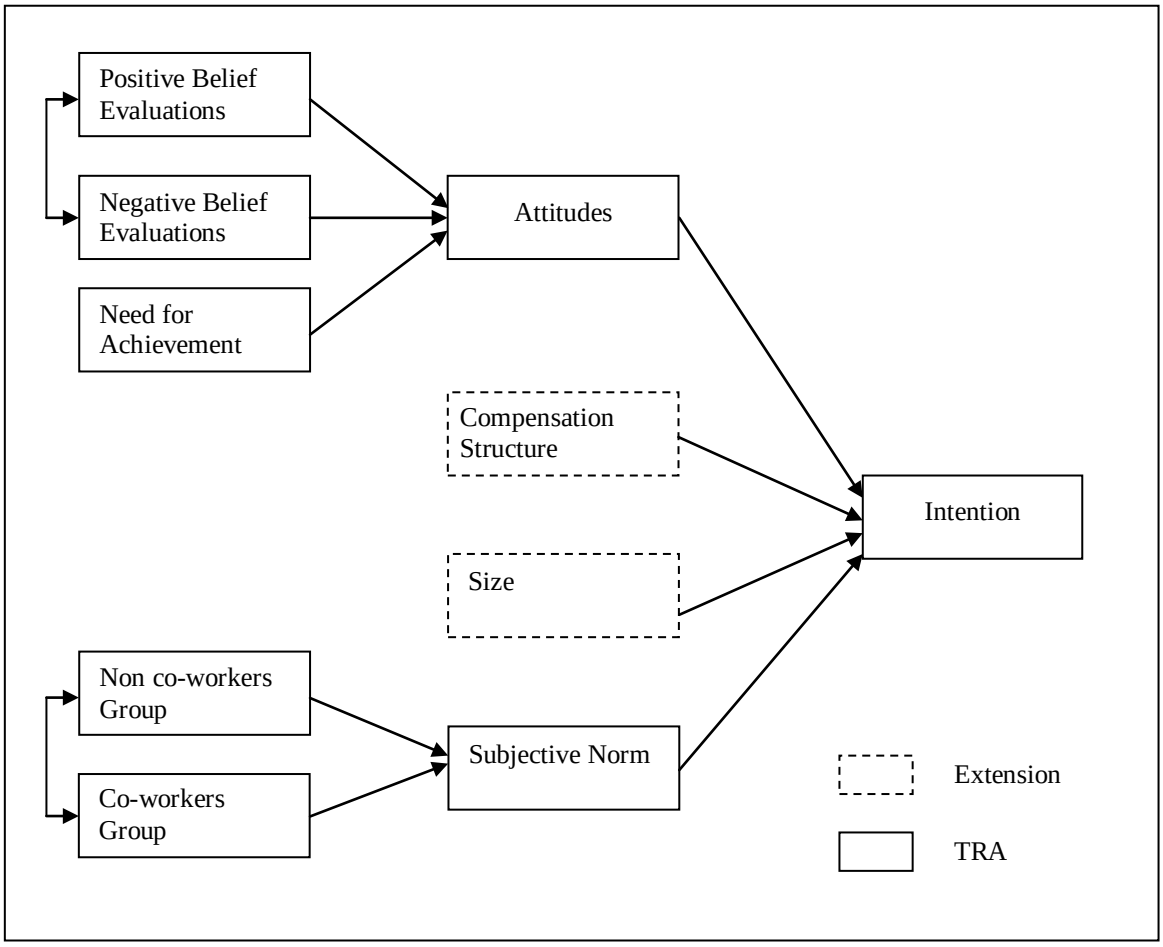

Figure 2.13: Extension of Theory of Reasoned Action (TRA) with organizational contextual factors

Source: Gillet and Uddin (2005)

This review confirms that both TRA and TPB could be successfully utilized in ethical decision-making studies. The constructs of both models are significant predictors of ethical intentions. Furthermore, the study by Flannery and May (2000) confirmed that organizational situational factors including ethical climate and financial cost can be incorporated into the TPB as perceived behavioral control factors. Moreover, Gillet and Udin (2005) revealed that organizational contextual factors, in this case organizational size, can be incorporated into a TPB theoretical framework. In addition, these ethical decision-making studies have successfully integrated organizational and individual level constructs in their theoretical

framework. Based on this evidence, this study will also incorporate both individual and organizational level constructs. Since the present study investigates organizational ethical intention, the chosen approach is the application of TPB with the incorporation of organizational situational and contextual factors.

2.8 Summary

Chapter 2 provided a critical literature review relevant for this research. First, fraud and forensic accounting services were defined and described in detail. In addition, the failure of audit standards and financial audits in addressing the problem of fraud was highlighted. The review underlined the crucial need for forensic accounting services and reemphasized the significance of this research. The antecedents of the behavioral intention to use professional services including forensic accounting services have not been studied previously. Therefore, the literature on relevant social cognitive theories was scrutinized. The four theories reviewed were the Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Health Belief Model (HBM) and Hierarchy of Effects Model (HOE). The imperative was to accentuate the vital need for a more comprehensive framework that could integrate individual and organizational constructs. Moreover, detailed analysis of selected research on protective behavioral intention and ethical decision-making provided sound evidence in support of the need for an integrative and comprehensive theoretical framework.

In conclusion, this chapter highlighted the need for an integrative research model in investigating the behavioral intention to use forensic accounting services for the detection and prevention of fraud. The literature review on the four social cognitive theories provides the theoretical underpinning for Chapter 3. The next chapter will begin by stating the research questions and research objectives. Then, the chapter will examine individual constructs to rationalize the development of an initial conceptual model that could be utilized in this study.

CHAPTER 3

RESEARCH QUESTIONS AND RESEARCH MODEL

3.1 Introduction

This chapter begins by addressing the main ingredients that drive this research, the research questions and corresponding research objectives. These two elements provide the groundwork towards the development of the initial research model. The integrative model from Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Health Belief Model (HBM), and Hierarchy of Effects Model (HOE) as well as organizational factors derived from innovation adoption, ethical decision-making, and fraud studies is illustrated to provide a clear understanding of the direction of this study. The constructs are grouped into seven factors these being external, cognitive, internal control, external control, threat perception, normative, and contextual. Subsequently, each construct in the model is described in detail. The justification for the inclusion of the individual constructs in the preliminary research model is rationalized through a review of literature. In addition, the gaps in research are highlighted and the key contributions of the present research are discussed. The goal is to validate the need for a distinctive integrative model that departs from traditional frameworks in predicting the behavioral intention to use forensic accounting services by large Malaysian companies.

3.2 Research Questions

Chapter 1 and 2 highlighted the prevalence of fraud and the severe costs of fraud to organizations. The crucial need for forensic accounting services in fraud detection and prevention was also evidenced. However, as reported in PricewaterhouseCoopers' 3rd biennial Economic Crime Survey (PricewaterhouseCoopers 2006a), only 20% of Malaysian companies utilized forensic accounting services to mitigate fraud. Hence, the primary focus of this study is to explore the following research questions:

RQ1: What are the predominant factors that influence the behavioral intention to use forensic accounting services for the prevention and detection of fraud by large Malaysian companies?

RQ2: To what extent do these factors influence the company's intention to use forensic accounting services?

3.3 Research Objectives

Based on the research questions, the principal objectives of this study are:

RO1: To identify the factors that influences the behavioral intention to use forensic accounting services for the prevention and detection of fraud by large Malaysian companies.

RO2: To examine how attitude towards forensic accounting services influences the intention to use forensic accounting services.

RO3: To examine how internal and external control factors influence the intention to use forensic accounting services.

RO4: To examine how threat perception influences the intention to use forensic accounting services.

RO5: To examine how stakeholder pressure influences the intention to use forensic accounting services.

RO6: To examine the mediating influence of organizational contextual factors on the intention to use forensic accounting services.

3.4 Research Model

The literature review revealed that the Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) are the two central theories utilized in behavioral intention research (Ajzen and Fishbein 1980; Ajzen and Madden 1986). Both TRA and TPB are relevant for the current study because the two main constructs, attitude and subjective norm, may have a significant impact on the behavioral intention to use forensic accounting services. In addition, TPB can provide further valuable insight through both organizational external and internal control factors that may hinder or facilitate the intention to use forensic accounting services. Although TPB does take into account cognitive, normative, and control factors, it is still limited. This is because it does not consider threat perceptions which may be useful for this study since the purpose of forensic accounting services is to avoid the threat of fraud.

The Health Belief Model (HBM) was one of the premier health models that originated from social cognitive theory. The main constructs of HBM are perceived severity, susceptibility, benefits, and barriers (Rosenstock 1974). Illness is a discernible threat to an individual's health. Likewise, fraud is a perceptible threat to an organization's profit margin and efficiency. Individuals attempt to protect themselves from the serious threat of illness by either detecting or preventing it from occurring. Vice versa, organizations try to guard themselves from the threat of fraud through fraud detection and prevention. Fundamentally, both protective measures are undertaken to avoid or reduce the negative outcomes of a threat. These similarities point to the applicability of HBM in predicting the behavioral intention to use forensic accounting services. However, since the study is based on organizational decision-making, the limitation of this model is the lack of consideration on normative, external, contextual and control factors.

Lavidge and Steiner (1961), in the advertising Hierarchy of Effects Model (HOE), claimed that the formation of awareness and knowledge of the product which is the cognitive stage precedes the affective and behavior stage. By applying the HOE model as a basis, the present study surmises that an organization is influenced through awareness of forensic accounting services to consider using forensic accounting services. For the purpose of this study, awareness of forensic accounting

services is the amassed experiences gathered through the promotional actions of professional bodies and accounting firms. Therefore, these external factors are direct determinants of awareness of forensic accounting services. This phase is vital because forensic accounting services is an emerging field, particularly in Malaysia, and only through external factors organizations can gain awareness that leads to the formation of an attitude. Once a positive attitude towards forensic accounting services is formed, organizations may progress to the behavioral intention phase.

The literature shows that ethics provide a foundation for fraud prevention and detection strategies and ethical considerations play a vital role in the organization's commitment towards a zero tolerance towards fraud (Krummeck 2000; Koestenbaum, Keys, and Weirich 2005; Castellano and Lightle 2005; Grace Jr. and Haupert 2006; Kranacher 2006; Hemandez and Groot 2007). In view of this support, this study believes that the decision to use forensic accounting services is an ethical decision-making. Innovation adoption is a process of uncertainty reduction and information gathering and potential adopters engage in information-seeking behaviors to learn about the expected consequences of using the innovation (Rogers 1995). Although forensic accounting services and the services included in the innovation adoption studies have different characteristics, the decision to use forensic accounting services is similar to innovation adoption because assessment and evaluation of information determines the decision-making process.

Therefore, to gain further insight about the drivers of this specific intention, the present study researched the findings from studies done on organizational ethical decision-making and innovation adoption. In addition, fraud studies that analyze the impact of internal control strength and other fraud risk factors (Matsumura and Tucker 1992; Daigle, Kizirian, and Sneathen 2005; Bierstaker, Brody, and Pacini 2006; Rae and Subramaniam 2008; Green, Foran, and Bublitz 2007), was reviewed to gather important empirical evidence that support the theoretical underpinning of the current research.

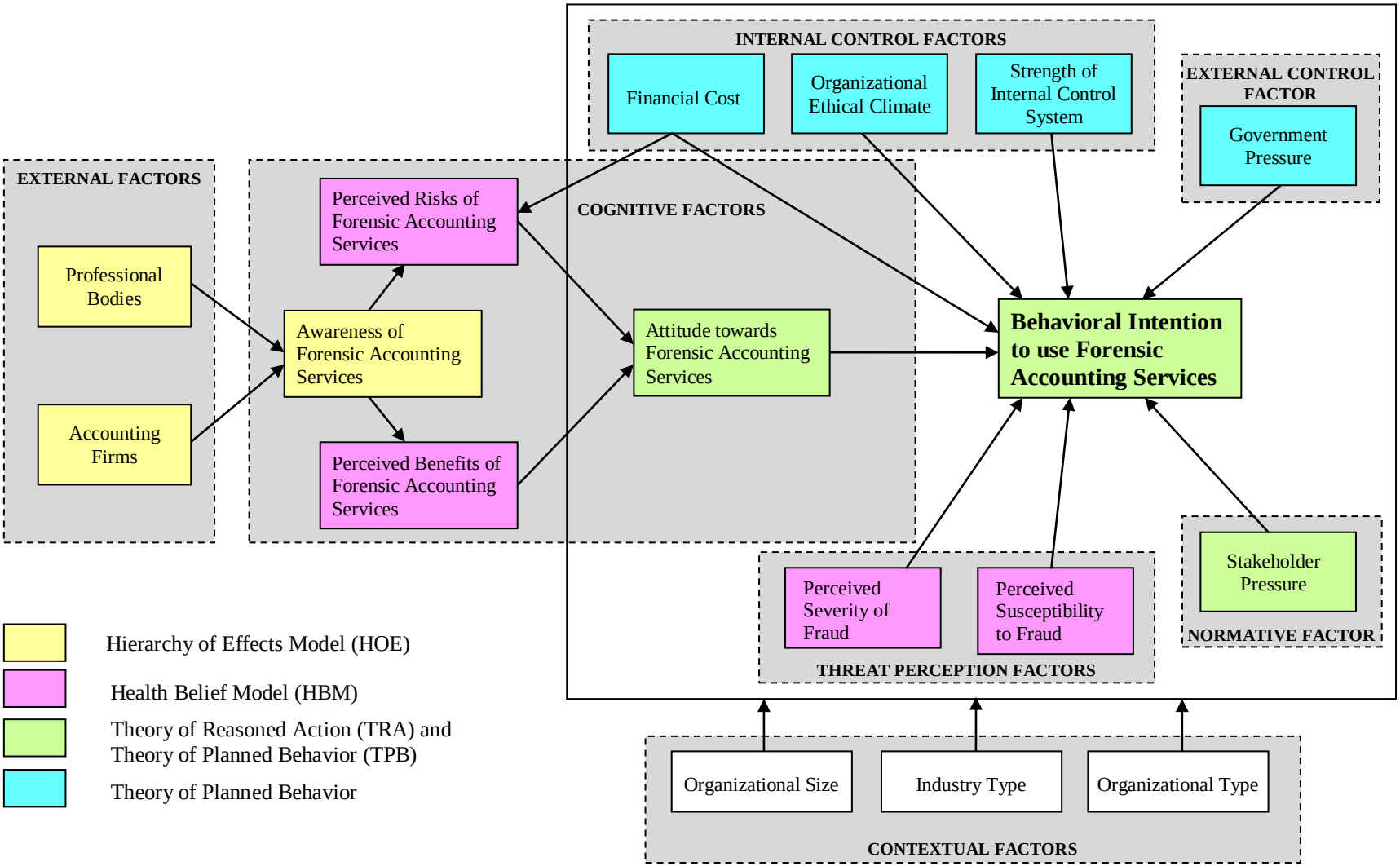

Figure 3.1: Initial research model

Hence, the initial research model, illustrated in Figure 3.1, is drawn from four social cognitive theories namely the HOE, HBM, TRA and TPB. In addition, organizational factors identified in ethical decision-making, innovation adoption, and fraud studies are also incorporated into the research model. Past research has reported on the value of integrative models that have consolidated constructs from more than one theory (Nigg, Allegrante, and Ory 2002; Fishbein and Cappella 2006; Schmiege, Bryan, and Klein 2009). According to Schmiege, Bryan, and Klein (2009 95) these models focused on "continual theory development via the extension and improvement of well established theory". In addition, the integrative approach enhances the predictive power of the research model (Poss 2001). Therefore, the present study believed that combining theories incorporated the best features from different theories and appeared to be a constructive approach. Furthermore, this study combined individual level constructs from cognitive and threat perception factors with organizational constructs from external, internal control, external control, normative, and contextual factors. The following contains a discussion of each of the construct included in the initial research model.

3.4.1 External Factors

Since forensic accounting services is a relatively new field, organizations have to first become aware of these services. External factors are factors outside the organization that contribute in creating awareness of these services to the organization. The awareness of the benefits and risks of forensic accounting services will drive the organization's intention to use these services. Based on literature review, two external factors have been identified, professional bodies and accounting firms.

3.4.1.1 Professional Bodies

Among the professional bodies involved in creating awareness on fraud and anti-fraud programs globally are International Federation of Accountants, Association of Certified Fraud Examiners, Financial Executives International, Information Systems Audit and Control Association, The Institute of Internal Auditors, Institute of

Management Accountants and Society for Human Resource Management. In addition, each country has its own active professional bodies that play integral roles in promoting awareness on fraud and anti-fraud methods. Selected prominent global and national professional bodies and their roles in creating awareness of forensic accounting services will be discussed here.

The International Federation of Accountants (IFAC) is a private governance organization whose members are the national professional association of accountants from different countries. The major undertaking of this body is to actively take care of public interest, reinforce the accountancy profession globally, and collaborate towards upholding impeccable quality standards (International Federation of Accountants 2006). This professional body sees itself as the representative of worldwide accounting profession. It strives to provide continuously awareness on both fraud and anti-fraud programs.

An example of a national professional association of the accounting profession is the American Institute of Certified Public Accountants (AICPA). This is the professional organization for all Certified Public Accountants in the U.S. AICPA's aim is to deliver members with the resources, information, and leadership to facilitate and enhance their professionalism in serving their employees, clients and the public overall. One of the foremost interests of the AICPA is to promote both public awareness and confidence in the integrity, objectivity, competence, and professionalism of CPA's (American Institute of Certified Public Accountants 2009).

Due to escalating fraud, the AICPA has implemented and monitored new standards and guidelines to assist auditors in the detection of fraud. Auditor's responsibility for the detection of white-collar crime was originally specified in the AICPA's Statement of Auditing Standards (SAS) No. 17, Illegal Acts by Clients. Later, SAS No. 54, Illegal Acts by Clients, outmoded the SAS No. 17. SAS No. 82, Consideration of Fraud in a Financial Statement Audit, thereafter replaced the SAS No. 54. SAS No. 82 was subsequently exchanged by SAS No. 99, Consideration of Fraud in a Financial Statement Audit in 2002 (Brickner and Pearson 2003). One of the major initiatives of each superseding standards is augmented emphasis on auditor responsibilities to detect fraud and material misstatement (Viton 2003).

The Association of Certified Fraud Examiners (ACFE) is recognized as the largest and foremost anti-fraud organization worldwide. It is the global leader in establishing and implementing anti-fraud training and education. The ACFE comprises of nearly 50 000 members throughout the world and this includes an active Malaysian chapter. The ACFE's mission is to decrease the occurrence of fraud and white collar-crime and to support it members in fraud detection and prevention strategies. The ACFE provides certifications to fraud examiners, implements mandatory continuous professional education, and provides the leadership to enthuse public confidence in the integrity, objectivity and professionalism of CFE's. Aside from this, the ACFE actively promotes fraud awareness of both fraud and anti-fraud methods to government employees, business communities and the public. The ACFE and AICPA have collaborated successfully to establish the Institute of Fraud Prevention, which works towards identifying the most effective anti-fraud practices for an organization (Wolosky 2004).

In Malaysia, the leading professional body is Malaysian Institute of Accountant (MIA) and Malaysian Institute of Certified Public Accountants (MICPA). The MIA plays a leadership role in upholding both the professionalism of accountants and public interest. The MICPA is the premier qualification body in Malaysia. This body strives to achieve its mission of enhancing the professional qualification of CPA's by promoting impeccable professional conduct and technical competence. Both professional bodies conduct seminars and courses to deliver quality training for members. Professional bodies play an important role in creating awareness of forensic accounting services. The major strategies used by the professional bodies are seminars, courses, publication of articles in journal and magazines and distribution of information through newsletter or pamphlets. Table 3.1 below illustrates some of the activities of the different professional bodies towards promoting forensic accounting services.

Table 3.1: Promotional activities on forensic accounting services by professional bodies

Professional Body	Seminars/Courses/Conferences	Journals/Magazines	Newsletters/Pamphlets
AICPA	• AICPA National Forensic Accounting Conference • Forensic Accounting: Fraudulent Reporting and Concealed Assets • Advanced Forensic Techniques for Accountants • Fraud and the Forensic Accountant: Tackling Fraud from Start to Finish	Journal of Accountancy	• CPA Client Bulletin • The CPA Letter • Forensic & Valuation Reporter (monthly e-newsletter)
ACFE	• Annual ACFE Fraud Conference • Introduction to Digital Forensics: Gathering and Preserving Electronic Evidence • Digital Forensic Tools and Techniques: Taking Fraud Examination to the Next Level • Fraud Prevention	Fraud Magazine	• FraudInfo (bi-weekly e-newsletter) • The Fraud Examiner (monthly e-newsletter)
MIA	• Forensic Accounting Course • Forensic Accounting and Investigation Workshop • Forensic Accounting for Accountants in Commerce & Industries • Forensic Accounting for Practitioners	Accountants Today	• E-circulars • E-news (monthly)
MICPA	• Forensic Accounting Workshop	The Malaysian Accountant	• The CPA e-Newsline • The CPA Students eCommunicator

Swan and Newell (1995) in their research stated that professional body was the most influential construct in determining the adoption of new technology by organizations. In addition, Swan, Newell, and Robertson (2000) in their study across four European countries reiterated that professional bodies could significantly influence the likelihood that an innovation will be adopted. Moreover, Damanpour and Schneider (2006) in their multidimensional empirical study of 1,200 organizations in the U.S. concluded that professional bodies significantly influenced the initiation, adoption and implementation of an innovation. Furthermore, a review of innovation diffusion models by Wejnert (2002) confirmed that professional bodies supply vital information to adopters and this in turn positively influences adoption. Additionally, a study by Satish and Rau (2009) stated that financial professional bodies' activities was a major source of information on new corporate tools for banks.

Weaver, Trevino, and Cochran (1999) conducted an empirical research on the environmental factors that influence corporate ethics program as control systems. They included the effect of professional associations as an external factor. The Conference Board, a leading business membership organization targeted towards high-level managers was found to have a significant influence on the organization's adoption of a broader ethics program. In view of these research support, the current conceptual model has included professional bodies as an external factor. Professional bodies could positively influence awareness of forensic accounting services and eventually these factors would influence the intention to use forensic accounting services in the prevention and detection of fraud.

3.4.1.2 Accounting Firms

The second external factor is accounting firms especially the 'Big Four' companies comprising KPMG, PricewaterhouseCoopers, Ernst & Young, and Deloitte. These companies conduct multifarious activities towards promoting the services that they provide. The website of these firms dynamically promotes forensic accounting services and provides information on the critical role of forensic accounting services in the fight against fraud.

In addition, all the accounting firms publish fraud survey reports that are either conducted globally and for a particular country. These accounting firms believe organizations could utilize the results of the extensive surveys as resources to combat fraud. Most of the published reports of the surveys give considerable emphasis on the imperative need for forensic accounting services in fraud detection and prevention. Furthermore, press releases on the survey findings often highlight the importance of forensic accounting services.

The accounting firms also publish numerous white papers, newsletters, and pamphlets that emphasize the fundamental function of forensic accounting services in fraud detection and prevention. For example PricewaterhouseCoopers (2008) published "Fraud: A guide to its prevention, detection and investigation" whereby the focus was on the crucial need for forensic accounting services in fraud prevention, detection and investigation. Accounting firms also conduct various courses and seminars to raise awareness on forensic accounting services. The courses and seminars are held continuously throughout the year to promote forensic accounting services offered by them. Apart from publishing white papers, newsletters, and pamphlets to increase forensic accounting services awareness, accounting firms also publish articles in journal and magazines. These articles in essence promote the various forensic accounting services offered by the firms and describe the success stories of forensic accounting services use. In addition, accounting firms provide information on forensic accounting services through their own auditors who are employed by companies to conduct either internal or external audit.

Rogers (1995) in explaining the diffusion of innovation (DOI) theory emphasized that vendors play a vital role in creating awareness of an innovation. Empirical evidence from organizational innovation adoption studies support the suggestion that the persuasive activities of vendor can to a large degree influence the probability that an innovation will be adopted (Newell and Swan 1994; Hultink et al. 1997; Frambach et al.1998; Dash 2001; Doolin and Troshani 2007; Lee and Shim 2007; Lee and Larsen 2009). In addition, Quaddus and Hofmeyer (2007) in their study revealed that vendors had a direct significant positive influence on awareness of an innovation. In this study, the role of accounting firms is similar to the role of vendors

because both are the suppliers of the intended service. Therefore, the initial research model accounts for the influence exerted by accounting firms as an external factor that will drive the awareness of forensic accounting services and subsequently influence the intention to use forensic accounting services.

3.4.2 Cognitive Factors

3.4.2.1 Awareness

In this study, awareness of forensic accounting services is the accrued service-related experiences gained for example via promotional activities of professional bodies or accounting firms. The HOE model asserts that the seeking of information about the product leads to awareness and knowledge of the product (Lavidge and Steiner 1961).The accumulated information leads to the formation of beliefs. Subsequently, the evaluation of beliefs leads to the formation of attitude. Therefore, awareness is a crucial antecedent to the formation of beliefs that forms attitude.

Agarwal and Prasad (1998) reasoned that awareness is an important determinant of specific perceptions that leads to the likelihood of innovation adoption. Hofmeyer (2005) in his study on business-to-business (B2B) adoption investigated the effect of awareness on both perceived direct and indirect benefits. He argued that although awareness is a precondition to forming beliefs, it is the perception of perceived benefits that drives attitude. The results supported the hypotheses that awareness has a significant positive influence on both perceived direct and indirect benefits. Based on this evidence, the positive influence of awareness on perceived benefit is integrated in the conceptual model. Therefore, awareness of forensic accounting services will eventually lead towards a positive attitude towards forensic accounting services. However, this attitude will arise through the perception of the potential benefits of acquiring forensic accounting services.

Although Hofmeyer (2005) concluded in his study that awareness is a significant prerequisite in forming beliefs on perceived benefits, he did not take into account the effect of awareness on perceived risks. Mitra, Reiss, and Capella (1999) examined

the impact of pre-purchase knowledge on three different classifications of services. They selected and classified the services into three broad types:

(1) Search based
   - attribute of service can be evaluated prior to purchase (e.g. bank account)

(2) Experience based
   - attributes of service can be discerned only after purchase (e.g. haircut)

(3) Credence based
   - attribute of service cannot be judged confidently by consumer even after purchase (e.g. psychotherapy)

Figure 3.2 illustrates the relationships in the conceptual model between the service classifications and variables examined.

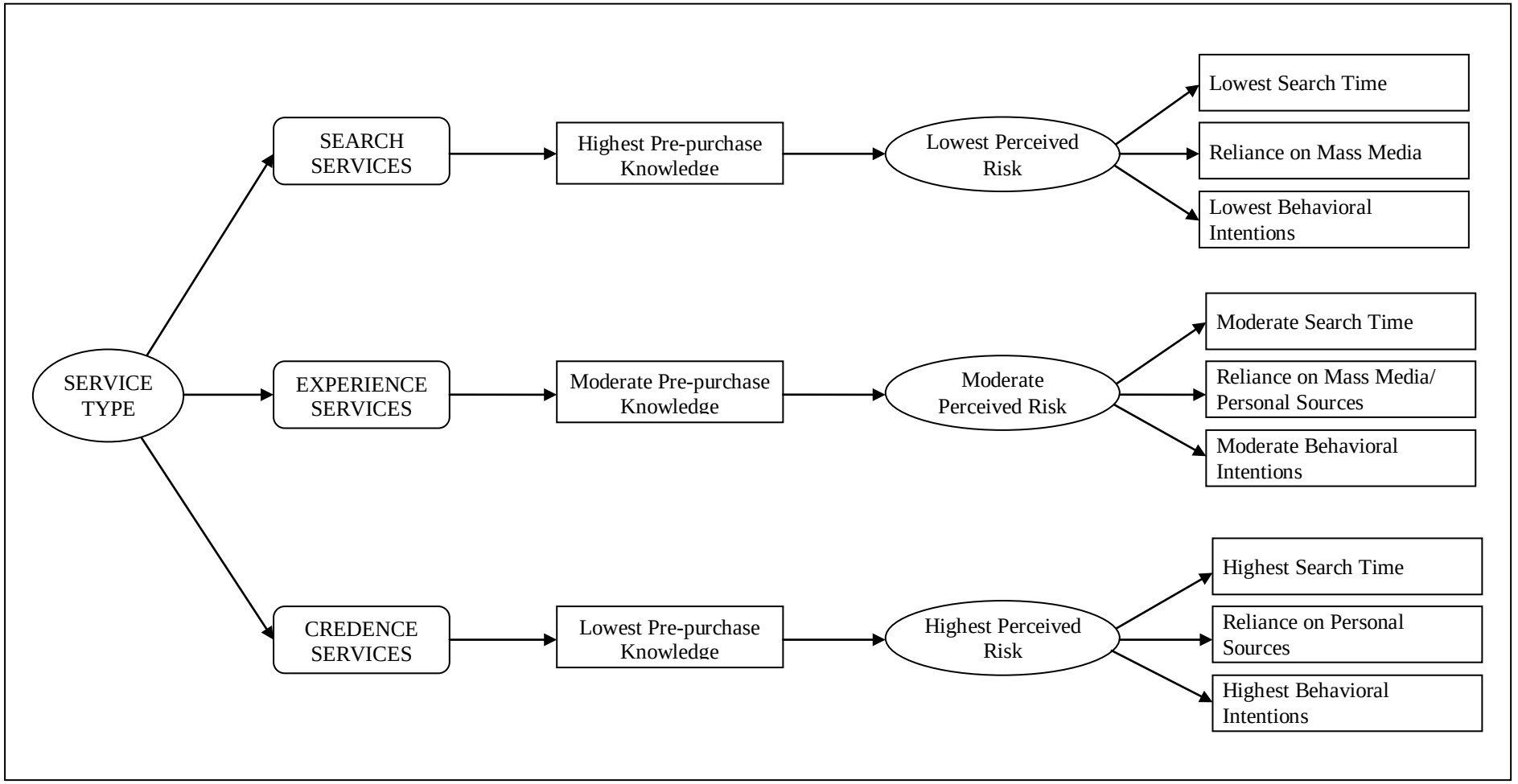

Figure 3.2: Perceived risk, information search, and behavioral intention in services classification
Source: Mitra, Reiss, and Capella (1999)

Based on the definition provided by Mitra, Reiss, and Capella (1999) on the different types of services, forensic accounting services fits into the credence services category. The consensus among expert scholars is that service purchases pose more ambiguity and uncertainty than goods or product purchase (Guseman 1981; Murray and Schlater1990). Furthermore, the study results confirmed that credence services had the lowest pre-purchase knowledge and the highest perceived risks. However, this was a comparison study and did not evaluate the significance of the relationship between pre-purchase knowledge and perceived risks.

In conclusion, the literature research exposed that awareness is an integral prerequisite of perceived benefits and increased knowledge comparatively lowered perceived risks. However, to the best of researcher's knowledge, there has not been any study, which has investigated the effect of awareness on both perceived benefits and perceived risks. Therefore, to fill this theoretical research gap, this study intends to examine the influence of awareness as direct antecedents of perceived risks and perceived benefits.

3.4.2.2 Perceived Benefits

In this study, perceived benefits is the result of the assessment of the likelihood of achieving positive outcomes by using forensic accounting services in fraud detection and prevention. There are numerous positive benefits of acquiring forensic accounting services relevant for this study. However, only selected integral benefits will be discussed. First, it will give a policy of warning to everyone that the company is serious in mitigating fraud. The greater vigilance due to the use of forensic accounting services will considerably deter any unethical individual behavior. Furthermore, Ramaswamy (2005) believed forensic accountants have expert knowledge on the most effectual method of fraud prevention and they should be a key constituent of the governance committee to develop a reliable system of corporate governance and interlink it into the internal control system. Hence, forensic accounting services is a vital fraud prevention investment.

Second, in the detection of fraud, forensic accounting services will help in the recovery of assets and cash that have been stolen. According to the global economic crime survey 2005 conducted by PricewaterhouseCoopers (2005), the low recovery percentage is due to the reliance on internal investigations. The report said that higher recovery rate is found when external professional help that is forensic accountants or investigators are called in. In addition, the 'Big Four' accounting firms claim in their website that they have the expertise and investigative skills to trace and recover lost assets (Zhang 2005).

Third, by doing the right thing, the image of the firm will be enhanced through the eyes of stakeholders. Fombrum and Shanley (1990) applied the perspective of stakeholder management theory in their research. The results of their study confirmed that decisions to prevent unethical behavior will form a favorable reputation and will give a competitive advantage to the company. Employing a reputable forensic accounting firm with established record of accomplishment and widespread network connections would lend credibility to the organizations fraud detection and prevention strategies. Therefore, the use of forensic accounting services to prevent unethical behavior will send a message of trust and transparency and will positively influence the perception of stakeholders such as customers, suppliers, and business partners.

Next, forensic accountants have more objectivity and credibility than internal auditors or company accountants in fraud detection and prevention (Chew 2001). This is because an external party, which is not part of the organization, would be impartial or objective in reporting to management. Furthermore, financial audits cannot be relied upon to detect immaterial frauds when controls are subject to management override and collusive manipulations (Singleton et al. 2006; Pearson and Singleton 2008). Hence, board of directors or audit committee should employ forensic accountants who possess valuable expertise in investigating and preventing this form of fraud.

The next perceived benefit is that forensic accounting services would provide significant in-depth accounting expertise and industry knowledge that would greatly complement existing internal or external auditors (Chew 2001). Harris and Brown

(2000) affirmed that the skills of a forensic accountant far exceed those of a financial auditor. Research has revealed that proactive forensic data analysis using computer based sophisticated analytical tests could detect fraud that may remain unnoticed for years (Brown, Aiken, and Visser 2007). In addition, Srivastava, Mock, and Turner (2003) in their empirical study established that forensic audit procedures significantly lowered fraud risks.

The subsequent perceived benefit is that forensic accountants gather and present evidence in a specialized and concise approach (Chary and Kiranmai 2006). They are logical, methodological, precise, and thorough. This adherence to detail is important in uncovering complex fraud. Additionally, systematic and exact presentation of evidence is required in courts. Litigation support forensic services provide assistance for legal or regulatory proceedings. This entails expert witness and consultation roles from the forensic accountant (AICPA Forensic and Litigation Services Committee 2006). All the 'Big Four' auditing firms provide this expertise as part of their forensic services.

The final perceived benefits of acquiring forensic accounting services selected for discussion is the provision of valuable labor resources (Chew 2001). This is particularly true in the incidence of a major fraud. The organization would be wasting important work force resources to conduct an exhaustive investigation. The forensic team could take over this meticulous job and thereby freeing workers needed for other pertinent management issues. This is crucial especially when immediate action is required to contain the repercussions of fraud and mobilize the recovery process. The seven perceived benefits of forensic accounting services highlighted here provide a clear picture of the importance of forensic accounting services in fraud detection and prevention.

TRA and TPB give an expectancy value perspective on the intention for a particular behavior. When an individual believes that his action will have clear benefits, he will form a positive attitude towards that behavior and will more likely form an intention to perform it. Empirical studies on organizational ethical decision-making and innovation adoption have shown that perceived benefit has a significant impact on attitude and intention (Mathieson, Peacock, and Chin 2001; Featherman and Pavlou

2003; Hofmeyer 2005; Lu, Hsu C. and Hsu H. 2005; Luarn and Lin 2005; Stevens et al. 2005; Wu and Chen 2005; Wu and Wang 2005; Seyal, Rahman, and Mohammad 2007; Wei et al. 2009; Tung, Chang, and Chou 2008; Tung et al. 2009). Perceived benefits, as a construct of the HBM is a person's belief referring to the sense of effectiveness on taking a particular behavior to avoid a threat (Strecher and Rosenstock 1996). Therefore, the preventive action may not be executed unless the individual perceived great benefits for taking the action. Empirical studies done on protective behavior intention have also shown that perceived benefits is an important determinant of intention (Vanlandingham et al. 1995; Wulfert and Wan 1995; Savage and Clarke 2001; Roden 2004; Ham 2005; McClenahan et al. 2007). Therefore, this study believes that the multifarious benefits of forensic accounting services may influence attitude towards forensic accounting services.

3.4.2.3 Perceived Risks

Perceived risks are the uncertainty involved in the decision to purchase a product or service due to the negative consequences associated with this acquirement (Cunningham 1967; Schiffman 1972; Bettman 1973). The operationalization of perceived risks by Jacoby and Kaplan (1972) from the seminal work of Bauer (1967) has been widely used in the marketing literature. Fraedrich and Ferrel (1992) and Tan (2002) summarized the various facets of perceived risks from both Jacoby and Kaplan (1972) and MacCrimmon, Wehrung, and Stanbury (1986) and applied it in ethical decision-making studies. Table 3.2 describes the salient aspects of perceived risks used in these studies.

Table 3.2: Facets of perceived risks
Source: Fraedrich and Ferrel (1992) and Tan (2002)

Perceived Risks Facet	Description – Definition
1. Financial risk	The probability that the intended decision will incur financial loss.
2. Performance risk	The probability that the product or service purchased fails to deliver the desired benefits.
3. Physical risk	The probability of the product or service being unsafe and cause harm or injury.
4. Psychological risk	The probability that the product or service will have a negative effect on the consumer's self-image or self-concept.
5. Social risk	The probability that the product or service will affect the way others think of the individual or organization.
6. Overall risk	The overall probability of how risky this product or service is when all criteria are evaluated together.

In the present study, perceived risks are the negative consequences associated with acquiring forensic accounting services. Two of the aforementioned perceived risks will be excluded from this study because they do not apply to the forensic accounting services context. First, forensic accounting services do not cause any physical harm since it is an intangible credence service. In addition, forensic accounting services do not pose psychological risks to any individual since the decision to utilize forensic accounting services is made collectively at the organizational level.

Hence, the salient perceived risks adopted for this study are financial risks, performance risks, and social risks. Since the bills for forensic accounting services are very high (Christensen, Byington, and Blalock 2005) and there is no guarantee for the detection of fraud, the recovery of losses or for the total prevention of fraud.

Therefore, the financial risk factor is also very high. The cost of an intensive forensic audit can easily accumulate to hundreds of thousands even millions of dollars (Gray 2002). Furthermore, although the costs are tangible, the benefits are not perceptible prior to acquirement. These factor further increases the risks of acquiring forensic accounting services.

Second is performance risk, which is the uncertainty that the service will not deliver the required necessary benefits. This is because as credence based service, it is inherently difficult to attain pre purchase information and knowledge on forensic accounting services (Hill 1988; Mitra, Reiss and Capella 1999). Therefore, the quality of forensic accounting services provided cannot be judged confidently prior to purchase. This decreased pre-purchase confidence would certainly enhance performance risks.

Third is social risks, the risks that acquiring forensic accounting services will affect the manner in which stakeholders view the organization. Stakeholders might view the use of forensic accounting services as a sign that the company is having problems and the incapability of settling this problem internally indicates the seriousness of the problem (Conley 2000). Therefore, there is a potential loss of status due to the stigma of using forensic accounting services. These plausible image issues would increase the social risks of using forensic accounting services.

Based on this evidence, it is plausible that perceived risks of forensic accounting services will negatively influence the intention to acquire forensic accounting services. The negative relationship between perceived risks and intention has been empirically validated in various ethical decision-making and innovation adoption studies (Tan 2002; Heijden, Verhagen, and Creemers 2003; Lu, C. Hsu and H. Hsu 2005; Gewald, Wullenweber, and Weitzel 2006; Matos, Ituassu, and Rossi 2007). Furthermore, studies using the HBM on protective behavior have also yielded the same results, perceived barriers significantly influences threat avoidance intention and behavior (Wulfert and Wan 1995; Vanlandingham et al. 1995; Savage and Clarke 2001; Lajunen and Rasanen 2004; Roden 2004; Ham 2005; Wang 2005; Gooding et al. 2006; McClenahan et al. 2007).

According to Hill (1988), from the consumer's perspective, the purchase of professional services is noticeably different from the purchase of generic services. The primary cause of these differences is the higher degree of perceived risks associated with the purchase of professional services (Hill, 1988). Mitra, Reiss, and Capella (1999) in their study classified services into three broad types: search based, experience based, and credence based. They categorized credence-based services as services that have the lowest amount of pre purchase knowledge available for the consumer and attributes of the services cannot be confirmed even after purchase. Forensic accounting services fits into this category. The results of their research indicate that credence based services have the highest financial, social and performance risks. This confirms the argument that forensic accounting services are perceived as a high-risk service.

HBM alludes that both perceived benefits and perceived risks are direct antecedents of behavior. In addition, innovation adoption researchers have successfully included both perceived risks and perceived benefits in their theoretical framework as direct antecedents of intention (Eroglu 1992; Featherman and Pavlou 2003). However, both TRA and TPB emphasize the evaluation of salient beliefs in forming attitude. Hofmeyer (2005) confirmed the significant positive influence of perceived direct and indirect benefits on attitude. In addition, Jurison (1995) has conceptually verified the negative relationship between perceived risks and attitude. Therefore, it can be concurred that perceived risks and perceived benefits, which are fundamentally behavioral beliefs, would determine the formation of attitude.

Lu, C. Hsu, and H. Hsu (2005) studied the effects of both perceived risks and perceived benefits upon the attitude towards online applications. The results indicate that beliefs on risks and benefits account for an impressive 66 percent of the variance in attitude towards online applications. Therefore, this study confirms that perceived benefits and perceived risks are significant determinants of attitude. Although both perceived risks and perceived benefits have been proven to significantly influence attitude, composite models of TPB and HBM have applied either perceived benefits/risks or attitude (Poss 2001; Ham 2005). Based on the importance of both perceived risks and perceived benefits as antecedents of attitude, this study models them as directly affecting attitude towards forensic accounting services.

3.4.2.4 Attitude

Attitude is defined as an overall evaluation affect that forms positive or negative feeling about performing a particular behavior (Fishbein and Ajzen 1975). TRA emphasizes the importance of attitude as a mediator to form behavior intentions. When a positive affect is formed, the intention for a particular behavior is developed. This attitude intention relationship has been proven in numerous studies on protective behavior (Michels et al. 1995; Vanlandingham et al. 1995; Wulfert and Wan 1995; Quine, Rutter, and Arnold 1998; Poss 2001; Lajunen and Rasanen 2004; Wang 2005; Levy, Polman, and Clough 2008; Simsekoglu and Lajunen 2008) and ethical decision-making studies (Randall and Gibson 1991; Kurland 1996; Gibson And Frakes 1997; Cordano and Frieze 2000; Flannery and May 2000; Buchan 2005; Carpenter and Reimers 2005; Gillet and Udin 2005; Cronan and Al-Rafee 2008). Similarly, this study proposes that a positive attitude towards using forensic accounting services will increase the intention to use these services.

3.4.3 Normative Factor

Fishbein and Ajzen (1975, 302) defined subjective norms as "the person's perception that most people who are important to him think he should or should not perform the behavior in question." This factor may significantly influence organizational decision intention because decision-making at the organizational level is predominantly based on what others think the organization should do. The theory on stakeholders management (Hill and Jones 1992) states that organizations feel the pressure to pursue or not to pursue an action based on what they think the sentiments of the stakeholders are. Stakeholders can be classified into two discrete groups namely market and non-market based on which stakeholders are given higher priority in competing claims (Baron 1995).

Market stakeholders who include customers, suppliers, employees, banks, and shareholders as well as competing firms play an important part in economic transactions and form critical relationships with the organization (Cummings and Doh 2000). Hill and Jones (1992) claimed that market stakeholders pose the realistic threat that any untimely severance of relationships would result in considerable

unwarranted damage to the organization. In addition, the loss of market shareholders' confidence in the organizations' capability would create immediate adverse results and impede organizational performance (Stevens et al. 2005).

Non-market stakeholders interrelate with the organization on a basis of non-economic value. They include regulatory agencies, court system, government bodies, and special interest groups (Baron 1995). The interactions between non-market stakeholders and organizations are geared towards achieving acceptable social standards such as social responsibility (Baron 1995). These stakeholders do not have enough economic grips on the organization. The harm from non-market stakeholders are infrequent and may even be judged as trivial (Stevens et al. 2005).

Therefore, this study believes that the salient stakeholders that might pressure organizational behavioral intention to use forensic accounting services are market stakeholders. These market stakeholders include shareholders, bankers, customers, and suppliers. In addition, board of directors (BOD) was also chosen as influential stakeholders because they have supervisory powers as the highest authority in an organization. Boards of directors' are elected by shareholders to establish corporate policies and aid management decisions. Therefore, BOD's perceptions may significantly influence the organizational decision to use forensic accounting services. However, although government, a non-market stakeholder may influence this behavioral intention; it is not included as a stakeholder pressure component. Government does not have an economic power on organizations unlike market shareholders. Therefore, it would be more beneficial to examine the influence of government separately. Hence, alternatively, the influence of government pressure would be studied as an external control factor.

Stevens et al. (2005) in their study applied the Theory of Planned Behavior. Stakeholder pressure was selected as the subjective norm construct. The results of the study revealed that this factor has a significant influence on the ethical decision-making process of financial executives. In addition, numerous other studies on ethical decision-making have established the significance of subjective norm (Gibson and Frakes 1997; Cordano and Frieze 2000; Carpenter and Reimers 2005; Gillet and Uddin 2005). Even studies done on protective behavior revealed that subjective norm

is a significant predictor of intention and behavior (Vanlandingham et al. 1995; Wulfert and Wan 1995; Cordano and Frieze 2000; Poss 2001; Savage and Clarke 2001; Lajunen and Rasanen 2004; Ham 2005; Simsekoglu and Lajunen 2008). In view of this support, this study proposes that stakeholder pressure will have a significant impact on the intention of a company to use forensic accounting services.

3.4.4 Internal Control Factors

Ajzen (1988) incorporated the perceived behavioral control construct as a key component of the theory of planned behavior. At the organizational level, the control factors can be separated as factors internal or external to the organization (Quaddus and Hoffmeyer 2007). Internal control factor is conceptualized as internal situational conditions in the organization that either facilitates or constrains the organizations' intention (Ajzen 1991). In the context of this research, internal control factors that were found to be salient are financial cost organizational ethical climate, and strength of internal control system.

3.4.4.1 Financial Cost

In the prevention of fraud, most organizations acquire forensic accounting services to conduct risk management analysis and implement strategies to minimize fraud risks. One of the most important applications of these strategies is the tightening of the organizations' internal control system. According to Chan (2006), organizations that haven't invested adequate resources to maintain an efficient internal control system are the most susceptible to fraud. Apostolou and Crumbley (2008) agreed that lack of adequate controls is the major reason that increases fraud occurrences.

Nearly sixty years ago, Williams (1952) argued that financial cost is an important aspect that has to be considered in revising and maintaining an efficient internal control system. Although the consensus by experts (Williams 1952; Christensen, Byington and Blalock 2005; Chan 2006) is that the benefits of investing in adequate controls would outweigh the high costs, as an economic institution, organizations are still be reluctant to commit to costly investment. William (1952) believed that for an

organization weighing in the cost-benefit factor is difficult mainly because whilst the financial cost is tangible, the related benefits are intangible.

Organizations are at core economic institutions (Flannery and May 2000). Therefore, the key driver of strategic decision-making in an organization is economic incentives (Ilinitch and Wicks 1996). Cost could either facilitate or hinder any economic motivation. This explains why financial cost is a focal consideration in acquiring forensic accounting services for fraud detection and prevention.

In the detection of fraud, a forensic audit is not only time consuming but entails a significantly higher expense compared to a normal audit (Apostolou and Crumbley 2008). The extent of the forensic audit determines the expense that would be incurred (Christensen, Byington, and Blalock 2005). Therefore, the fees for forensic accounting services can become exorbitant (Grippo and Ibex 2003). The cost of an intensive forensic audit entails a bill that maybe hundreds of thousands even millions of dollars (Gray 2002).

Even if the forensic audit is engaged after fraud has been detected, the bill will be expensive. This is because the audit would involve meticulous gathering of evidence that could later be presented in court and in expert witness testimony. For example, the total forensic accounting services fees to unravel the 2001 and 2002 financial misstatements of HealthSouth, the largest healthcare service providers in the U.S. were $276.8 million (Apostolou and Crumbley 2008).

Bierstaker, Brody, and Pacini (2006) in their study researched accountants' perceptions regarding fraud detection and prevention methods. The findings revealed that organizational use of forensic accountants was the least often used of any anti-fraud method but had the highest mean effectiveness rating. The study also analyzed the influence of firm revenue on the use of effective but less utilized anti-fraud methods. The researchers hypothesized that organizations with greater revenue would have increased resources afford the more expensive but effectual anti-fraud methods including forensic accounting services. The results clearly supported the hypothesis whereby organizations with turnover of more than $1 billion acquired more forensic accounting services. The authors suggested that the reason

organizations with turnover less than $250 million were disinclined to use forensic accounting services were due to high financial cost.

However, organizations with revenues between $250 million and $ 1 billion also did employ forensic accounting services. The researchers explained that this was also due to the notion of huge financial cost. This present study would examine large Malaysian companies. Large companies are defined as companies with sales turnover of more than RM5 million for the primary agriculture and service sectors and more than RM25 million for manufacturing and manufacturing related sectors (National SME Development Council 2005). This amount is well below the USD $250 millions maximum revenue for small firms in Bierstaker, Brody, and Pacini's (2006) study. Therefore, financial cost could certainly be an impediment towards large Malaysian companies' intention to use forensic accounting services.

Ibrahim and Abdullah (2007) in their study on forensic accounting in Malaysia interviewed twelve accounting practitioners. They found that forensic accounting services is still at the formative stage in Malaysia and the advancement towards widespread use is very sluggish. The study also revealed that organizations viewed forensic accounting services as a costly service that can only be afforded by companies with a huge amount of turnover. They concluded that financial cost is the major obstacle towards the utilization of forensic accounting services by Malaysian companies.

Flannery and May (2000) researched environmental ethical decision-making in the U.S. metal finishing industry. The study chose financial costs as one of the perceived behavioral control factor. According to the researchers, metal-finishing managers affirmed during the qualitative field study that financial cost repercussions would influence their ethical decision intention. The researchers argued that not taking into account the influence of financial cost would have significantly reduced the study's practical implications.

Results revealed that financial cost exceeded the other constructs of TPB in its ability to explain variability of the conceptual model (Flannery and May 2000). The researchers concluded that this was the premier ethical decision intention study

grounded in the TPB to incorporate financial cost as an external perceived behavioral control factor. The results established the construct's significant negative influence on ethical intention. The study recommends that future organizational research need to scrutinize further the role of financial cost in differing ethical decision intentions.

Forensic accounting services are costly, the benefits of using these services are intangible, and the decision to use these services is an ethical decision intention. In addition, innovation adoption studies have verified that financial cost has a significant influence on the intention to adopt (Luarn and Lin 2005; Wu and Wang 2005; Wymer and Regan 2005; Tung, Chang and Chou 2008; Lee and Larsen 2009; Tung et al. 2009; Wei et al. 2009). Based on these support, this study believes that financial cost may significantly influence the intention to use forensic accounting services. Therefore, the present study attempts to verify the negative influence of financial cost on the ethical intention to use forensic accounting services.

Interestingly the review of literature also evidenced that financial cost could positively influence the perceived risks of acquiring a product. Financial cost is the monetary expense of acquiring forensic accounting services whilst as explained in Section 3.4.2.3, perceived risks are the anticipated negative consequences associated with using forensic accounting services. According to Grewal, Gotlieb, and Marmorstein (1994), the cost of a product is an inherent factor that determines perceived risk. Sweeney, Soutar, and Johnson (1999) reiterated that the higher the financial cost, the greater is the degree of perceived risk.

Chen and Dubinsky (2003) asserted that the higher the cost, the higher would be the financial risk. They further argued that the higher the cost, the risk of erroneous product evaluation or performance risk also increases. The results of their study indicated that perceived price had a significant positive influence on perceived risks. The researchers concluded that reducing monetary price would significantly decrease perceived risks and eventually increase purchase intention. Based on this evidence, the present study anticipates financial cost would positively influence the perceived risks of acquiring forensic accounting services.

3.4.4.2 Organizational Ethical Climate

According to Krummeck (2000), organizational ethical environment that is permissive to fraud plays an influential role in motivating fraud. Moreover, the literature review has confirmed that ethical considerations are the underpinning of fraud prevention and detection strategies (Krummeck 2000; Castelleno and Lightle 2005; Koestenbaum, Keys, and Weirich 2005; Grace Jr. and Haupert 2006; Kranacher 2006; Hernandez and Groot 2007). Kranacher (2006) observed that an important element of ethics discussions is the 'tone at the top' of an organization. Castellano and Lightle (2005) recommend that organization's 'tone at the top' towards ethical decision-making be assessed to reveal the influence of the tone on the ethical climate of the organization.

Although Minkes, Small, and Chatterjee (1999) question the significant influence of management, the consensus among theorist is that management has the capability of setting the "tone at the top" which subsequently establishes the ethical environment of the organization (Trevino 1986; Paine 1997; Sims 2000; Sims and Brinkmann 2002). The Treadway Commision report (National Commission on Fraudulent Financial Reporting 1987) identified 'tone at the top' as the critical factor that influenced fraudulent financial reporting. Roy (1998) reiterated that it is the 'tone at the top', that establishes the accounting atmosphere in the organization and influences the accounting managers' decision to behave ethically.

According to COSO (1992), the ethical environment of an organization encompasses aspects of upper management's tone in achieving organizational objectives, their value judgments and management style. PricewaterhouseCoopers (2007b) also emphasized that strong organizational ethical environment is predominantly determined by the 'tone at the top'. Grace Jr. and Haupert (2006) reiterated that management must set an ethical 'tone at the top' and lead by example. Every member of the organization eventually follows top management's ethical conduct, which slowly but surely cascade down (PricewaterhouseCoopers 2007b).

Kranacher (2006) emphasized that developing and implementing strong controls is a vital imperative of an organization's ethics policy. Every member of the organization

must be aware of the tight controls put in place and the severe consequences of overriding controls (Grace Jr. and Haupert 2006; Kranacher 2006). The PricewaterhouseCoopers (2007a) report argued that only the combination of strong ethical environment and internal control system would create an effective fraud prevention program.

Another PricewaterhouseCoopers (2006b) report emphasized that an anti-fraud culture has to be first embedded in an organization to ensure the effectiveness of any anti-fraud policies. In addition, the report asserts that the attitude of top management including audit committees must send a clear message of 'zero tolerance' towards fraud and this message must pervade the ethical environment of the organization. Furthermore, in the U.S. the newly enacted Sarbanes-Oxley Act 2002 has further reinforced the critical role of ethics in organizational anti-fraud programs. KPMG's (2008) 'Integrity Survey' analyzed the correlation of ethics and compliance program elements to fraud perceptions. The results indicate that organizations with an ethics program had decreased number of fraud, were more willing to report fraud, had more positive response to reporting misconduct and an increased 'tone at the top' perception. The report concluded that building a high-integrity organization is crucial and imperative towards preventing and detecting fraud.

Meta analytic reviews of ethical decision-making studies reveal that these studies have analyzed both individual and situational factors in an organization (Ford and Richardson 1994; Loe, Ferrell, and Mansfield 2000; O'Fallon and Butterfield 2005; Trevino, Weaver, and Reynolds 2006). Previous researches in organizational ethical decision-making have established the importance of situational factors in an organization that would significantly influence decision makers (Tetlock 1985; Cohen 1998; Trevino 1986). Tetlock (1985) argued that organizational decision makers are usually constrained by the norms, procedures and resources of the organization. In addition, Perrow (1997) claimed that organizational factors could easily dwarf individual preference and completely alter the ultimate organizational decision. One of the organizational contextual factors that have been proven to be significant by numerous researchers is ethical climate (Ford and Richardson 1994; Loe, Ferrell and Mansfield 2000; O'Fallon and Butterfield 2005; Trevino, Weaver, and Reynolds 2006).

Rae and Subramaniam (2008) in their study on the antecedents of internal control strength found that there is a positive relationship between organizational ethical environment and strength of internal control procedures. They claim that ethical values will be communicated by example through leadership and it is expected that organizations with high standards of integrity and ethics are more likely to adopt and enforce high quality internal control procedures for the detection and prevention of fraud. In addition, Daigle, Kizirian, and Sneathen (2005), in a study on information systems audit engagements, found that the client's management tone has a significant impact on the strength of the client's security controls. Therefore, organizations with a strong ethical climate would employ forensic accounting services to increase the strength of its internal control system.

Flannery and May (2000) applied the TPB in their study and found ethical climate as a perceived behavioral control construct has a significant influence on environmental ethical intentions. Buchan (2005) extended the TPB and applied ethical climate as a separate construct to capture information that is distinct from existing TPB constructs. However, his study on ethical intention in the public accounting profession found that the impact of ethical climate on intention was not significant. Buchan (2005) explained that the lack of support is because public accountants are bound by strict professional standards and are monitored by outside organizations such as the American Institute of Public Accountants, boards of accountancy and peer firms. The present study will be on large Malaysian companies, not bound by any outside organizations or professional standards, and therefore would have differing ethical climates that may influence the decision to use forensic accounting services.

Victor and Cullen (1988, 101) argued that individual characteristics were inadequate to explain the outcome of ethical decisions in an organization. Therefore, they developed the concept of ethical climate and defined this construct as "the prevailing perception of typical organization practices and procedures that have ethical content". The two-dimensional model of ethical climate types as conceptualized by Victor and Cullen (1988) is portrayed in Figure 3.3.

LOCUS OF ANALYSIS

ETHICAL CRITERION	Individual	Local	Cosmopolitan
Egoism	Self-Interest	Company Profit	Efficiency
Benevolence	Friendship	Team Interest	Social Responsibility
Principle	Personal Morality	Company Rules and Procedure	Laws and Professional Codes

Figure 3.3: Theoretical ethical climate type
Source: Victor and Cullen (1988)

The basis for this development is the three classes of ethical theory based on the seminal work of Kohlberg (1969); egoism, utilitarianism, and deontology. The major referent point that influences the individual's decision on whether a decision is ethical or unethical is divided to three distinct categories; individual (e.g. one's personal moral beliefs), local (e.g. organizational practices and policies), and cosmopolitan (e.g. professional associations). Figure 3.4 illustrates the five dimensions of ethical climate based on their research analysis.

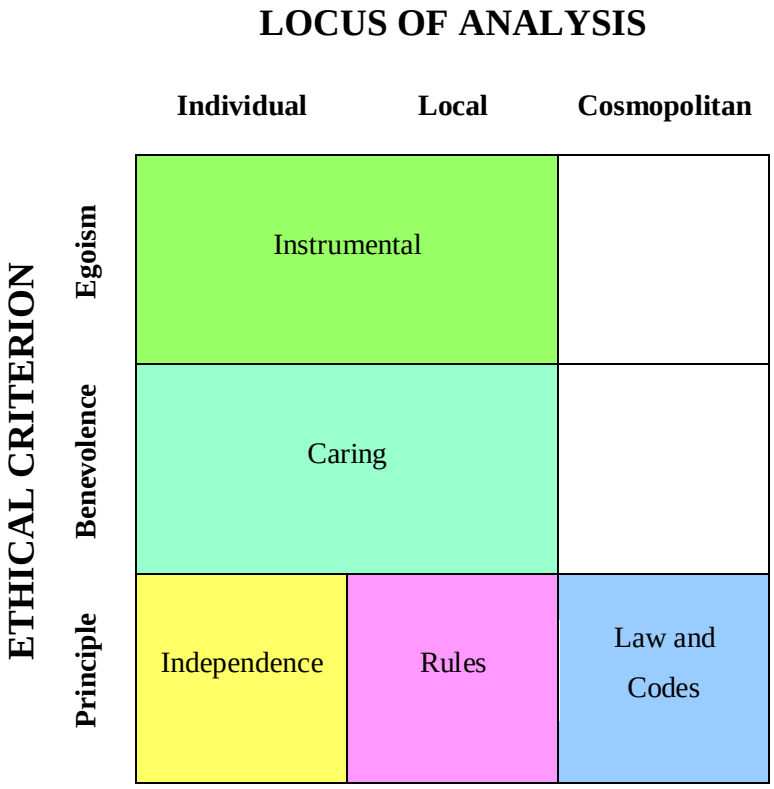

Figure 3.4: Five common empirical derivatives of ethical climate
Source: Victor and Cullen (1988); Martin and Cullen (2006)

The five dimensions are instrumental, caring, independence, rules and law & code. The researchers emphasized the fact whilst Kohlberg's (1969) theory is based on individual's decision; organizational ethical climate is a group-based phenomenon. In addition, Victor and Cullen (1988) claimed that organizational ethical climate is a vital indicator of organizational members' ethical decisions.

Wimbush and Shepard (1994) examined the relationship between organizational climate and ethical behavior. The conceptual model of this relationship is represented by Figure 3.5. The authors concluded that ethical climate could promote both ethical and unethical behavior.

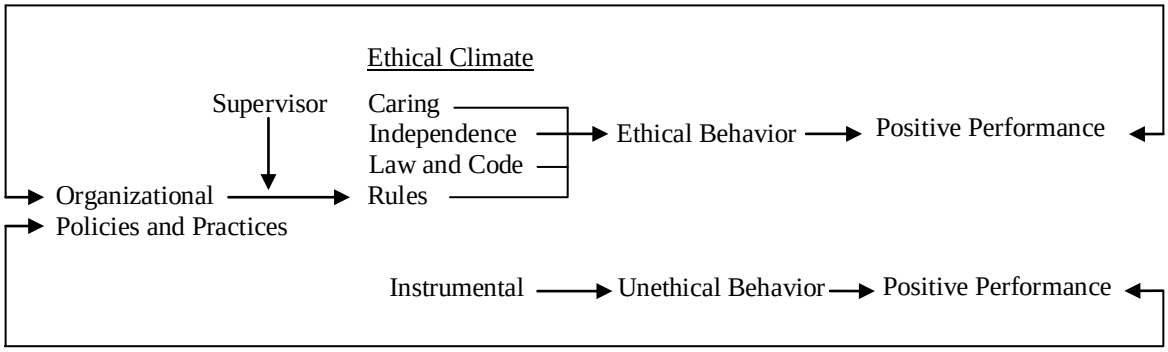

Figure 3.5: Model of the relationship between ethical climate and ethical behavior
Source: Wimbush and Shepard (1994)

A meta-analytic review by Martin and Cullen (2006) confirmed the ethical climate theory originated from Victor and Cullen (1988) as one of the most influential conceptual framework in business ethics research. Their meta-analysis of past research verifies that ethical climate significantly influences organizational decision-making that involves ethical issues (Martin and Cullen 2006). The decision to use forensic accounting services is an ethical decision intention and organizational ethical climate is an influential construct of organizational ethical decision-making. Therefore, this study would examine the influence of organizational ethical climate on the behavioral intention to use forensic accounting services for fraud detection and prevention.

3.4.4.3 Strength of Internal Control System

The conceptual development of internal control from the early 1900's is portrayed in Table 3.3. The evolution of this concept encompasses the increasingly broadened and complicated organizational financial landscape.

Table 3.3: Development of internal control
Source: Tipgos (2002)

Year	Conceptual Development of Internal Control
1900 – 1929	**Earliest Concept of Internal Control** Protect cash from theft by employees.
1929 – 1936	**Early Revision of Internal Control** Protect cash and other assets from theft by employees. Promote operating efficiency.
1936 – 1949	**Revised Early Concept of Internal Control** Safeguard cash and other assets. Check the clerical accuracy of records.
1949 – 1992	**Broadened Concept of Internal Control** Safeguard assets from loss or theft. Check the accuracy and reliability of accounting data. Promote operating efficiency. Encourage adherence to established managerial policies.
1992 to present	**COSO Internal Control** Effectiveness and efficiency of operation. Reliability of financial reporting. Compliance with applicable laws and regulation

According to the Committee on Sponsoring Organizations of the Treadway Commission (COSO 1992), internal control is

> "a process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in (1) the effectiveness and efficiency of operations, (2) the reliability of financial reporting, and (3) the compliance of applicable laws and regulations".

Internal control has been established as the leading anti-fraud method within most organizations (Carpenter and Mahoney 2001; KPMG 2005; PricewaterhouseCoopers 2006a). Turner (2002) reiterated that internal controls are the organizations frontier defense in fraud prevention and detection. In addition, Carpenter and Mahoney (2001) believed that a comprehensive, well executed, and consistently monitored

internal control system is vital in the prevention of fraud and detection of fraud losses. This notion is supported by Hemraj (2004) who argued that the most effectual fraud deterrent method is an efficiently implemented system of control, which alone can offset the intention, method and opportunity to perpetrate fraud.

Game theory analysis and economic experimentation research by Matsumura and Tucker (1992) on fraud detection supported this view. The results of the study revealed that strength of internal control system significantly influenced fraud detection and prevention. The study concluded that if the internal control system in an organization is strong, auditors managed to detect fraud more often. Alleyne and Howard (2005) in their study examined audit procedures utilized by organizations post-Enron. The study also confirmed that organizations with sound internal controls are more capable in fraud detection and prevention.

The importance of internal control is further substantiated by government acts and policies. For example, the Sarbanes-Oxley Act of 2002 stipulates that it is management's responsibility to implement and monitor an effective control structure. Section 404 of the act requires public listed organizations to assess, evaluate, and provide a mandatory report on the strength of their internal control system. This report must be "included in the company annual report, certified to its accuracy by upper management and attested to by an independent audit firm" (Byington, Christensen, and McGee 2006, 31). In Malaysia, the Malaysian Code of Governance established in 2003 (revised in 2007) also emphasizes management's responsibility in ensuring the adequacy of internal control system. Although the compliance of the code is recommended, it is only mandatory for public listed companies. The requirements of the internal control report in the U.S. are detailed in Table 3.4.

Table 3.4: Management report on internal control
Source: Securities and Exchange Commission (2003)

Components of Internal Control Report
1. a statement of management's responsibility for establishing and maintaining adequate internal control over financial reporting for the company
2. a statement identifying the framework used by management to evaluate the effectiveness of the company's internal control over financial reporting
3. management's assessment of the effectiveness of the company's internal control over financial reporting as of the end of the company's most recent fiscal year including a statement as to whether or not internal control over financial reporting is effective
4. a statement that the registered public accounting firm that audited the company's financial statements included in the annual report has issued an attestation report on management's evaluation of the company's internal control over financial reporting
5. management evaluation and disclosure of any change in the company's internal control over financial reporting that occurred during a fiscal quarter that has materially affected, or is reasonably likely to materially affect, the company's internal control over financial reporting

However, Tipgos (2002) casts doubt on the effectiveness of internal control in fraud detection and prevention. He asserted that the major misconception is that internal control could prevent management fraud. Holtfreter (2004) agreed that control structures cannot completely provide assurance because they can be overridden or even ignored by management. Apostolou, Hassell, and Webber (2001) surveyed forensic experts at four leading accounting firms in a AICPA funded project. The Analytic Hierarchy Process (AHP) was applied to assess and rank the risk factors. The results attest that ‘management characteristics and influence over the control

environment' as the highest fraud risk factor. The study suggests that auditors should always be alert and aware of management overriding controls in an organization.
Patterson and Smith (2007) investigated the effects of Sarbanes-Oxley Act on organization's internal control system. The researchers cautioned that since it is management who design the control structure, management has the wherewithal to override the system. The study revealed that Sarbanes-Oxley Act has achieved its purpose of reducing the likelihood of fraud and increasing organizations' strength of internal control systems. According to the authors, although management could override strong controls, it has become increasing more difficult and costly. Hence, the cost-benefit of committing fraud has reduced considerably. The study concludes that increased strength of internal control could significantly reduce even management fraud.

Although management is ultimately responsible for internal control effectiveness, they are heavily reliant on internal audit expertise in evaluating their internal control structure (Achilles, Rieman, and Greenfield Jr. 2007). Internal auditors have been recognized as anti-fraud vanguards in organizations (Achilles, Rieman, and Greenfield Jr. 2007). Ernst & Young and Institute of Internal Audit Malaysia (2005) in their report on internal audit practices reveal that 83% of internal auditors in Malaysia are involved in preparing internal control statements. In the U.S., the internal auditor's burden of fraud detection and prevention through the monitoring of an effective system of control has substantially increased post-Sarbanes-Oxley Act (Achilles, Rieman, and Greenfield Jr. 2007).

Coram, Ferguson, and Moroney (2008) in their study found that internal auditors enhanced the control and monitoring structures in an organization. They state that this in turn has increased the likelihood of fraud detection and self-report of fraud. However, Chary and Kiranmai (2006) argued that it is the failure of auditors in ensuring the adequacy of internal control system in current demanding rigorous governance requirements that necessitated the need for forensic accounting services. Based on the evidence presented here it can be concluded that the decisive indicator of forensic accounting services use in an organizations is adequacy of internal control system in detecting and preventing fraud. Therefore, organizations that perceived their internal control system as effective would not have the intention to

use forensic accounting services for fraud detection and prevention. However, if the organization's strength of internal control system is weak, it would utilize proactive measures such as employing forensic accounting services which could rectify the weakness. Therefore, this study proposes that the strength of internal control system be included as an internal control factor in the initial research model. The conceptual model infers that strength of internal control system will negatively influence the intention to use forensic accounting services in the detection and prevention of fraud.

3.4.5 External Control Factor

External control factor is defined as factors outside the organization that may enable or hinder the organization's intention (Ajzen 1991). Taylor and Todd (1995) labeled this component as facilitating conditions. For this research, the external control factor chosen is government pressure. This control factor would either impel or impede the organizations intention to use forensic accounting services for fraud detection and prevention.

3.4.5.1 Government Pressure

Bommer et al. (1987) aptly described law as values and mores of society that have the force of its formal authority. Although legal and ethical are essentially not synonymous, the legal aspect is an influential consideration in many organizational ethical decisions (DiMaggio and Powell 1983). Essentially, organizations abstain from illegal actions to avoid the legal consequences of not adhering to the law. However, other salient driving forces restrain organizations such as evading bad publicity and even complying with their own morality. These compelling reasons elucidate the reason why government pressures in the form of codes, acts, enactments, and regulations are an important component of business organizations (DiMaggio and Powell 1983).

U.S. lawmakers passed the infamous Sarbanes-Oxley Act in 2002. The post Enron major governance and ethics reforms outlined in the act has the overarching aim of both shielding public interest and reinstating investor confidence. Badawi (2005)

asserted that the statutes of the Act and the new Securities and Exchange Commission initiatives that followed are considered the most significant legislation and regulations affecting the corporate community and the accounting profession since 1933.

Any non-U.S. company registered in U.S. exchanges under either the Securities Act of 1933 or the Security Exchange Act of 1994, regardless of country of incorporation or corporate domicile has to comply with the Sarbanes-Oxley Act. In addition, external auditors of such registrants, regardless of their nationality or place of business, are subject to the oversight of the Public Company Accounting Oversight Board (PCAOB) and to the statutory requirements of the SOA (Mcgraw 2002).

Furthermore, a variety of laws and regulations have emerged worldwide, providing organizations with an array of criteria to incorporate into their anti-fraud efforts. Some of the important global reforms are recapitulated in Table 3.5.

These government regulations require organizations to be more vigilant in the detection and prevention of fraud and material misstatement. For example, the Sarbanes-Oxley Act emphasize that the independent auditor needs to scrutinize for fraud and financial misstatement and forces upper management to certify that the audited financial statements are without any fraudulent material misstatement (Christensen, Byington, and Blalock 2005). Furthermore, according to Sarbanes-Oxley Act, managers who knowingly certify statements that have been falsified face increased criminal penalties, including stiff fines and/or prison terms (Viton 2003).

Table 3.5: Important global reforms and events
Source: KPMG LLP (U.S.) (Cited in KPMG 2006)

Law and Regulations	Year Enacted	Country
1. U. S. Sentencing Guidelines	1991	United States
2. COSO	1992	United States
3. Commonwealth Criminal Code Act	1995	Australia
4. Financial Services Action Plan (FSAP)	1999	European Union
5. U.S. Department of Justice Enforcement Guidance (Holder Memo)	1999	United States
6. The Financial Services and Markets Act	2000	United Kingdom
7. Corporation Act (including CLERP 9 Amendments)	2001	Australia
8. USA PATRIOT Act	2001	United States
9. Sarbanes-Oxley Act	2002	United States
10. Proceeds of Crime Act	2002	United Kingdom
11. U.S. Department of Justice Enforcement Guidance (Thompson Memo)	2003	United States
12. Australian Stock Exchange Guidance Note 9A	2003	Australia
13. NSYE and NASDAQ Listing Standards	2003	United States
14. The Combined Code on Corporate Governance	2003	United Kingdom
15. The Money Laundering Regulations	2003	United Kingdom
16. European Council on Economic Fraud	2003	European Union
17. Revised U. S. Sentencing Guidelines	2004	United States
18. Revised Combined Code with Turnbull, Smith, and Higgs Guidance 2005/2006	2005	United Kingdom

Geiger and Taylor III (2003) argued that one of the key corollary of the enactment of Sarbanes-Oxley Act is that forensic accounting could be used as an important organizational risk management strategy. Furthermore, Colbert and Meany (2006) believed that forensic accountants can help organizations comply with the myriad requirements necessitated by Sarbanes-Oxley Act. Christensen, Byington, and

Blalock (2005) further emphasized that Sarbanes-Oxley Act required the specialized audit skills of forensic accountant.

Empirical research has validated the significant influence of government pressure in organizational ethical decision-making. Weaver, Trevino, and Cochran (1999) researched the influence of environmental factors on corporate ethics program's role as a control system. The findings of their study revealed that government pressure, in this case the United States Sentencing Commission (USSC) guidelines for punishing organizational defendants as a significant influence on the scope and the control orientation of the organization's ethics program. The researchers concluded that although government guidelines pressured the development of ethics programs, the firms did it not to improve organizational ethics. Instead, their reason is to be able to cover their tracks in case they got caught in any misconduct.

In addition, innovation adoption studies have verified the significant influence of government in the intention to adopt an innovation (Tan and Teo 2000; Kuan and Chau 2001; Wymer and Regan 2005; Seyal, Rahman, and Mohammad 2007). Hofmeyer (2005) in his investigation of the factors that influence the intention to adopt B2B trading exchanges included government as creating both awareness and pressure. The study suggested that government activities will increase awareness of B2B trading but the result revealed that this factor was not significant. Government pressure in the form of government mandate to use Government Electronic Market Place (GEM) was included as one of the normative factor of coercion. The findings were similar, government pressure as a normative factor was not supported.

Tan and Teo (2000) applied the TPB as their theoretical framework to study the factors influencing the adoption of internet banking. Government was identified as part of the external control construct in perceived behavioral control. The findings show that government significantly influences the intention to adopt internet-banking services. Kuan and Chau (2001) applied a technology-organization-environment framework to study electronic data interchange (EDI) adoption in small business using a technology. According to Kuan and Chau (2001), the pressure exerted by government policy may be perceived differently by different firms. The results confirmed the hypotheses that adopter firms perceived higher levels of government

pressure than non-adopter firms. Therefore, the researchers concluded that legal pressure could increase the push towards innovation adoption.

Evidence from Quaddus and Hofmeyer (2007) indicated that government is not a significant normative factor whilst Tan and Teo (2000) identified government as a external control factor. In addition, Kuan and Chau (2001) established that government could exert significant pressure on organizations. Based on this evidence, the conceptual model would incorporate government pressure as an external control factor that would have a positive influence on the decision to use forensic accounting services.

3.4.6 Threat Perception Factors

Abraham and Sheeran (2005) claimed that threat perceptions are integral contributing factors that activate and spur the motivation to pursue a behavior that circumvents adverse outcomes. Threat perceptions can be distinguished as beliefs of susceptibility and severity. The present study's conceptual framework would include both perceived severity and perceived susceptibility in an extended TRA. Fishbein and Middlestadt (1989) argued that combining constructs measuring perceived susceptibility and perceived severity into TRA is unnecessary because their effects will be captured indirectly by the salient belief evaluation in the attitude construct. However, this study will not stretch the attitude construct by assuming perceived severity and perceived susceptibility are part of the construct.

In this study, perceived severity are the beliefs based on the evaluative consequence of not using forensic accounting services whist perceived risks are beliefs that arise from the evaluation of the consequences of using forensic accounting services. This study believes that useful insights could be gained by separating the two constructs and modeling them as individually influencing behavioral intention. In addition, Vanlandingham et al. (1995) argued that a person who believes both that the use of protective measures could prevent the threat and that the consequences of threat are severe may still choose not to use the protective measure if he feels that the risk of threat is slight. Hence, further important information could be gained by

incorporating the potential effects of perceived susceptibility in the conceptual model.

Interestingly, Lee and Larsen (2009) incorporated threat appraisal in their theoretical framework to examine the determinants of executives' decision to adopt a security system. The authors claim that this is a unique innovation adoption study explaining unchartered territory of threat perception. The model was able to explain 67% of the variance in intention and provided practical insights in the decision-making process of protective systems adoption. The results supported the significant influence of both perceived susceptibility and perceived severity on executives' intention to adopt antimalware software. Hence, threat perception was successfully incorporated into an innovation adoption study.

However, to the best of the researcher's knowledge, perceived severity and perceived susceptibility have not been integrated in an ethical decision model. It may be valuable to treat perceived susceptibility and perceived severity as separate constructs and examine their unique contribution and predictive power in directly influencing ethical behavior intention. Therefore, this study would be the first research that integrates threat perception factors into an ethical decision-making research. Perceived severity may help distinguish organizations who perceive the cost of fraud as low and high whilst perceived susceptibility may help distinguish organizations who have accepted their vulnerability to fraud and those who have not.

3.4.6.1 Perceived Severity of Fraud

The first threat perception factor, perceived severity is the subjective appraisal regarding the serious implications of being in an adverse condition. In this study, this would be the serious repercussions if the organization were victimized by fraud. The degree of seriousness of the consequences of fraud to the organization may be inferred from the overall appraisal of fraud consequences.

This cognitive appraisal includes the financial costs, management costs, and collateral costs of fraud. The massive direct financial loss of cash and assets due to

fraud as highlighted in fraud survey reports and the media are intimidating. The company's net income could be substantially reduced and the company might even face bankruptcy. Management costs entails distracted management time due to the diversion of focus to fraud, dealing with litigation issues, managing public and investor relations, and complying with renewed regulatory oversight and demands (PricewaterhouseCoopers 2007b). The loss of management time will impede productivity and growth (Glover and Aono 1995). Furthermore, the cost of insurance protection will be increased after an incidence of fraud is uncovered (Glover and Aono 1995; PricewaterhouseCoopers 2006b).

Collateral damage including damage to company image, low staff morale, and loss of stock value are viewed as the most influential cost of fraud (PricewaterhouseCoopers 2007a). It would be a struggle for companies to retrieve their reputation and gain back public support once they become a victim of fraud (Zahra, Priem, and Rasheed 2007). Furthermore, the effect of reputational damage would extend to impaired external business relationships for example with suppliers and bankers (PricewaterhouseCoopers 2007b). In addition, once fraud becomes public knowledge, loss of market confidence immediately sinks the stock value of the company (PricewaterhouseCoopers 2007a; Zahra, Priem, and Rasheed 2007). Subsequently, the direct consequences are shareholders' suit, civil fines, and even bankruptcy declaration (Beasley, Carcello, and Hermanson 2001).

Empirical studies using HBM has shown that perceived severity is an important construct that will significantly influence the decision to use protective measures (Vanlandingham et al. 1995; Lajunen and Rasanen 2004; Roden 2004; Levy, Polman, and Clough 2008). HBM stresses that the likelihood of pursuing a particular protective action to avoid the negative consequence would increase when the beliefs of the level of severity of the problem is high (Janz and Becker 1984). Acquiring forensic accounting services to detect and prevent fraud is one of the proactive measures that can be used by an organization to allay the fear of fraud consequences. Therefore, an organization would engage forensic accounting services to avoid fraud if it believes the consequences of fraud are severe.

3.4.6.2 Perceived Susceptibility to Fraud

Perceived susceptibility is defined as a person's perception of the likelihood of being in an adverse condition. Operational definition for this study would be the organizations' perception of the likelihood of fraud happening in the organization. Rosenstock (1974) claimed that the acceptance of susceptibility to an adverse condition differs widely amongst individuals. However, the higher the level of perceived susceptibility, the higher would be the fear factor and the higher is the possibility of following a protective action.

Fraud survey 2009 report (KPMG 2009) noted that 66% of organizations felt fraud is a major problem for Malaysian business, and 61% believed that fraud would be on the increase in the next two years but only 42% believed fraud is a major problem within their own business. This indicates that there appears to be an 'illusion of safety' among Malaysian companies. This 'illusion of safety' could explain the findings of the survey, which highlights that one of the major contributors of fraud is lack of awareness of risk. In conclusion, although organizations believe fraud is prevalent, they also believe that they will not be victimized by fraud and that the perceived susceptibility of fraud is low.

However, if there is a perceived susceptibility, organizations will commensurate measures to proactively manage the risk of fraud (KPMG 2005). Employing forensic accounting services is one of the proactive measures that can be taken up by an organization. Ramaswamy (2005) emphasized that a forensic accountant could play a key role in the organization's corporate governance system by helping companies prevent and detect fraud. Thus, the intention to use forensic accounting services can be crucial to allay the perceived susceptibility of fraud by an organization.

Studies on perceived susceptibility's influence on behavior intention have been done in health threat researches. Stefanek, Hartmann, and Nelson (2001) through their study found that the higher the perceived susceptibility and the higher the level of related worry, the higher is the intention to take a proactive measure to assuage the perceived susceptibility. In addition, Dijk et al. (2003) found that perceived susceptibility would significantly influence the behavioral intention to reduce an

adverse condition. Studies using the HBM model have also yielded the same results (Vanlandingham et al. 1995; Poss 2001; Roden 2004; Ham 2005; Levy, Polman, and Clough 2008). Michels et al. (1995) in their study extended the TPB and found that perceived susceptibility and habit were the strongest predictors of intention followed by attitude and subjective norms.

The literature review confirms the significant influence of perceived susceptibility in protective health behavioral intention. The imperative is to reduce the likelihood of succumbing to the threat. Similarly, to dispel the threat of susceptibility to fraud, organizations would employ the best anti-fraud measure available including forensic accounting services. In view of this support, this study believes perceived susceptibility of fraud may positively influence the intention to use forensic accounting services.

3.4.7 Contextual Factors

The key issue for this study is to understand the behavioral intention to use forensic accounting services by large companies. The contextual factors that are unique to each organization may drive this intention. Organizational characteristic have been proven by numerous studies to significantly influence the intention towards a particular behavior (Damanpour 1992; Harrison, Mykytyn, and Reimenschneider 1997; Igbaria et al. 1997; Argawal and Prasad 2000; Hofmeyer 2005). To explore the organizational characteristics that maybe salient for this study, literature on fraud, ethical decision- making and innovation adoption studies were examined. The search revealed that three organizational characteristics namely organizational size, industry type, and organizational type might have a significant influence.

3.4.7.1 Organizational Size

One of the early fraud studies that reported organizational size as an important determinant of white-collar crime was by Sutherland (1949). Subsequently, consecutive fraud studies have supported the notion that as size of organization increases, the incidence of white-collar crime also increases (Staw and Swajkoski

1975; Gricar 1983; Dalton and Kesner 1988; Kesner, Victor, and Lamont 1988; Baucus 1989). Baucus and Near (1991) in an event history analysis to predict illegal corporate behavior confirmed that large organizations had increased likelihood of illegal behavior.

Barnes and Webb (2007) examined the principal factors that influence the likelihood and size of occupational crime. Barnes and Webb (2007) concurred that an interesting argument can be made to explain either the positive or the negative influence of size on the occurrence of white-collar crime. The researchers believed that as size increases, the increased number of financial transactions and employees would result in increased opportunities for fraud perpetrators. However, they also argue that large organizations normally have more effective internal control systems such as segregation of duties that would prevent fraud. Vice-versa, smaller firms could not implement strict controls due to various reasons such as lesser scope for separation of duties and low cost benefit margins.

The outcome of these contradictory and compelling forces would determine the relationship between organization size and susceptibility to white-collar crime (Barnes and Webb 2007). The findings suggested that organizational size increased the likelihood of fraud and had a disproportionate effect on the size of fraud. Saksena's (2001) research suggested that the increase in organization's size increases the likelihood of fraud. He supported his findings using agency theory, which confirmed that large organizations lack the motivation of effective monitors. According to Vaughn (1982), decentralization opens up multiple opportunities for fraud to be perpetuated.

A recent study by Holtfreter (2005) examined organizations that have been victimized by fraud. According to Holtfreter (2005), research on white-collar crime has studied both individuals and organizations. However, Holtfreter (2005) emphasized that there is minimal knowledge about how fraud differs in distinct organizational settings. The findings indicate that organizational fraud type differs significantly based on organizational size. Therefore, the typical image of large profit-making organizations as the victims of fraud is not fully supported. This echoes the view of Hills et al. (1992) that the relationship between organizational

size and white-collar crime may not be strictly linear. Therefore, the present study believes further investigation on this construct is warranted.

Innovation adoption studies have consistently established that organizational size significantly influences the inclination to adopt an innovation (Bajwa et al. 2005). Although the direction of the relationship has been mixed, majority of the studies supported the positive influence of size (Frambach and Schillewaert 2002). Dewar and Dutton (1986) believed large organizations have the resources to afford the cost and handle the financial risks associated with the innovation. Frambach and Schillewaert (2002) argued that larger organizations felt a stronger need to adopt innovations that not only would support but also advance the organizations' performance. Likewise, it can be argued that smaller organizations are more flexible and open to inventive ideas (Frambach and Schillewaert 2002). In conclusion, there is a strong support on the influence of size in innovation adoption studies but there is a contradiction on the direction of its influence. Therefore, this study believes that size, as an organizational construct needs further investigation.

Meta-analysis of organizational ethical decision-making research confirms that the influence of organizational size has consistently been studied (Ford and Richardson 1994; O'Fallon and Butterfield 2005). Gillet and Uddin (2005) investigated chief financial officer's (CFO) intentions on fraudulent financial reporting. They argued that there was mixed theoretical and empirical evidence regarding unethical or illegal behavior. The researchers applied an extended TRA model that included firm size as a direct antecedent of intention. Findings of the study supported the notion that CFO's of larger companies had increased likelihood of unethical financial reporting. However, the recent study by Marta, Singhapakdi, and Kraft (2008) concluded that managers in larger organizations had significantly higher ethical intentions compared to smaller firms.

Ford and Richardson (1994) in their meta-analysis synthesized that three studies reported on the significant negative influence of size on ethical decision-making. O'Fallon and Butterfield (2005) in their meta-analysis found that two out of seven ethical decision-making studies reported significant findings on organization size. However, the results were mixed. Chavez, Wiggins III, and Yolas (2001) reported a

positive influence whilst Bartels et al. (1998) suggested that larger organizations had to deal with more severe ethical issues. O'Fallon and Butterfield (2005) concluded that future research is necessary due to the mixed results. This study will take up the call and examine the influence of organizational size on the ethical intention to use forensic accounting services in fraud detection and prevention.

Harrison, Mykytyn, and Riemenschnieder (1997) applied the TPB to explain and predict executives' decisions on innovation adoption in small businesses. Organizational size was included in the theoretical framework as a moderating factor. Results indicated that firm size significantly moderated the relationships between all three TPB constructs; attitude, subjective norms and perceived behavioral control to intention. The researchers concluded that firm size indirectly influences the decision-making process by varying the strengths of relationships between the construct and intention. Based on this support, the present study intends to use the same approach. Therefore, the moderating effects of organizational size on the behavioral intention model would be examined.

3.4.7.2 Industry Type

The next salient organizational characteristic is industry type. Numerous fraud studies had included this contextual construct in their theoretical framework (Baucus and Near 1991; Beasley et al. 2000; Holtfreter 2005; Barnes and Webb 2007). Barnes and Webb (2007) argued that type of fraud varies across industry type and the different industrial cultures would affect the organizations' susceptibility to occupational fraud. This indicates that the shared norms of the same industry would significantly influence the likelihood of fraud (Clinard and Yaeger 1980). Nevertheless, Barnes and Webb (2007) believed that methodological impediments have denied sufficient empirical support for these arguments. To overcome this insufficiency, Barnes and Webb (2007) investigated in their study the influence of industry type. They found empirical evidence to confirm industrial sector as a significant indicator of organization's susceptibility to white-collar crime. Beasley et al. (2000) agreed that concentrations of financial statement fraud can be traced to particular types of industry. The authors believe evidence of industry specific

techniques used to perpetuate fraud would be beneficial to both practitioners and regulators. The study concluded that fraud techniques varied substantially across industries.

O'Fallon and Butterfield (2000) in their meta-analysis of ethical decision-making studies reported that eight out of nine studies found significant differences across industries. Ford and Richardson (1994) in their meta-analysis concluded two out of the three studies on ethical decision-making did not support the effect of industry type. O'Fallon and Butterfield (2000) summarized that there could be significant differences across industries in ethical decision-making. Based on results of both fraud studies and ethical decision-making studies, the present research believes type of industry would influence the organizational intention to use forensic accounting services for fraud detection and preventions. However, this study would take Harrison, Mykytyn, and Riemenschnieder's (1997) approach and examine type of industry as a moderating factor to understand clearly this construct's effect on the ethical intention conceptual model.

3.4.7.3 Organizational Type

The final contextual construct is type of organization. This construct has been mostly examined in fraud studies as a determinant of organizations' susceptibility to fraud. Leatherwood and Spector (1991) have explained the origin of organizational type as an imperative organizational construct. Barnes and Webb (2007) believed agency problems are more prominent in public listed companies where there has to be a balance between profit maximization and responsibility for shareholders funds. Barnes and Webb (2007) found that occupational fraud is significantly greater in public listed company and private companies compared to public sector organizations. Holtfreter (2005) compared two types of organizations; publicly traded and privately held. They found that there were significant differences between the two types of organizations in the type of fraud committed. Fraud studies have indicated the significant influence of organizational type on the susceptibility to fraud and type of fraud perpetrated. However, to the best of the researcher's knowledge, there has not been any study that has examined the effect of

organizational type on the ethical intention of an organization. Based on these support, this study will investigate the influence of organizational type as a moderating factor on the intention to use forensic accounting services in fraud detection and prevention.

3.5 Summary

This chapter documented the research questions and research objectives. The conceptualization of the initial research model including the gaps in research was also discussed in detail. The initial research model embodied constructs from the Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Health Belief Model (HBM), and Hierarchy of Effects Model (HOE). In addition, organizational contextual factors from innovation adoption, ethical decision-making, and fraud studies were also taken into account. The moderating effects of organizational size, organizational type, and industry type were also incorporated to enhance the predictive power of the conceptual model.

The definition and background of each construct in the model was explained and the justification for each construct's inclusion in the conceptual model was provided. Altogether, seven factors and sixteen constructs were analyzed. The integrative approach combined individual level constructs from cognitive and threat perception factors with the organizational constructs from external, internal control, external control, normative and contextual factors. The initial research model was depicted in Figure 3.1 to illustrate the salient factors, constructs, and moderators.

Research questions and research objectives drive the research methodology. Therefore, the two research questions outlined early in this chapter and the corresponding research objectives will provide the foundation for Chapter 4. This chapter will describe the research methodology and design as well as the operationalization of the major phases in the research.

CHAPTER 4

RESEARCH METHODOLOGY AND DESIGN

4.1 Introduction

The research questions and objectives outlined in chapter 3 determined the selection of the research methodology and design. This chapter describes in detail the multi-phased mixed method research design chosen for this study. First, the positivist paradigm of this research is explained followed by the justification for the interpretive approach of qualitative field study within the positivist paradigm. In addition, the decision to select this particular type of mixed method design is rationalized. This is followed by clear descriptions of the research process. There are three major stages for this study; qualitative field interviews, pilot study and quantitative national survey. The sample selection, data collection, and data analysis for each of the sequential stages are clarified.

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Muthusamy, G. 2009. Behavioral intention to use forensic accounting services for the detection and prevention of fraud by large Malaysian companies. In *Curtin Business School Doctoral Students' Colloquium 2009*, Curtin University of Technology, Perth, 1-2 October.

Muthusamy, G., M. Quaddus, and R, Evans. 2010. Organizational intention to use forensic accounting services for fraud detection and prevention of fraud by large Malaysian companies. In *Oxford Business & Economics Conference*, St. Hugh's College, Oxford University, Oxford, U.K., 28-30 June.

Muthusamy, G., M. Quaddus, and R, Evans. 2010. The Theory of Planned Behaviour and organisational intention to use forensic accounting services. In *24th Annual Australian and New Zealand Academy of Management Conference*, University of South Australia, Adelaide, 8-10 December.

Muthusamy, G., M. Quaddus, and R, Evans. 2010. An exploratory study of the factors influencing large Malaysian companies' intention to use forensic accounting services. In *24th Annual Australian and New Zealand Academy of Management Conference*, University of South Australia, Adelaide, 8-10 December.

4.2 Research Paradigm and Method

Willis (2007, 8) defined a paradigm as "a comprehensive belief system, world view or frame work that guides research and practice in a field". Although there are numerous paradigms that guide research, the widely accepted list always includes positivism (Guba 1990). In addition, the basic tenets of behavioral science are founded on positivism (Willis 2007). Hessler (1992) articulated that the positivist's fundamental belief is that any scientific concept or idea can be measured or observed. Therefore, positivists are interested in the discovery of a universal truth that can be applied to all (Guba 1990).

The focus of the research is to create the understanding of the behavioral intention to use forensic accounting services by large Malaysian companies. This study aims to discover the measurable and observable determinants of forensic accounting services use that can be applied in various contexts. This could be done by adopting the positivist assumption that all meaningful problems can be framed in clear-cut frameworks, characterized by precise hypothesis and well-defined methods. The ontological position of this study is that reality is objective and can be found. Therefore, this research takes the positivist approach to build a conceptual model grounded on theory and subsequently test the effectiveness of the model.

The positivist's deductive mode of inquiry aims for objectivity, measurability, and controllability. As such, quantitative data collection would be utilized. Although Hesse (1980) conceded the positivist's paradigm is reductionist, he emphasized that no concept is too abstract that it cannot be measured. The method used in this study can easily be replicated to check on its validity and the use of standard evaluative criteria underlines the objective and unbiased nature of this research.

Although quantitative methods drive a positivist paradigm, this study will also collect and analyze qualitative data to enhance the understanding of the behavioral intention. This qualitative method leans towards the constructivist interpretive paradigm because the respondents' perspective is given importance (Willis 2007). The use of both quantitative and qualitative data collection in a single study is known as a mixed method research design (Teddlie and Tashakkori 2003). The application

of both procedures maybe more time consuming and require extensive qualitative and quantitative data analysis. Nevertheless, the rationale for the selection of this research design is that creation of understanding and meaning can be significantly augmented through qualitative field study. The initial research model grounded on theory can be fine-tuned based on the field study findings.

Therefore, the justification for the mixed method research design is that the combination of quantitative and qualitative method provides more in-depth understanding of the research problem and questions than the use of a single method by itself (Creswell 2008). The imperative is not to simply conduct two differing strand of research but rather merging, integrating, linking or embedding them as one (Creswell 2008). Miles and Huberman (1994, 42) contended that the combination of quantitative and qualitative data provides "a very powerful mix". Greene and Caracelli (1997) reiterate that assessing two types of data will provide a multifaceted representation of behavior. According to Creswell (2008), there are four types of mix method designs as illustrated in Figure 4.1.

Based on the premise that this is an exploratory study, the chosen mix method approach is type IV. Type IV mixed method research builds on the initial qualitative findings and progresses to generalizable results in the quantitative phase (Creswell 2008, 561). The objective of the type IV method is in line to the present study in the sense that the interpretive approach facilitates the positivist paradigm. Hence, the qualitative field study will facilitate the identification of factors and constructs that will fine-tune the initial research model. The objective of the field study is to ensure that the final research model is a better representative of the behavioral intention. The final research model is then utilized to develop a survey instrument that could be applied in a later quantitative study.

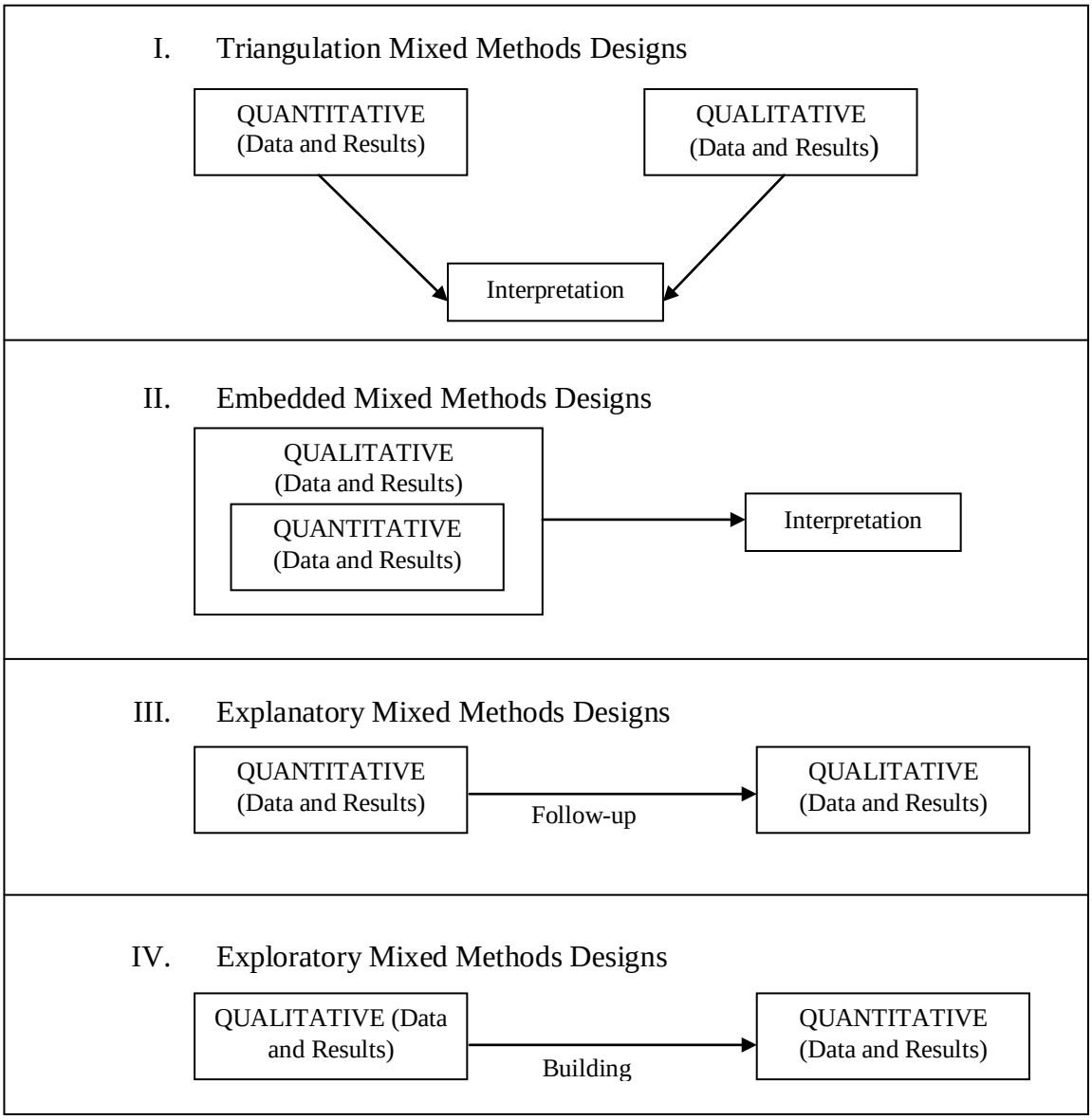

Figure 4.1: Four types of mixed methods design
Source: Cresswell (2008)

4.3 The Research Process

The research process is carried out in three distinct phases. The first phase commenced with an extensive review of literature related to theories applied in behavioral science research including protective health behavior and consumer behavior. Two core behavioral science theories, TRA and TPB were first examined followed by a leading health model adapted from behavioral science, HBM. In addition, the advertising model HOE was also inspected. A critical review on the advantages and limitations of each theory were included in the analyses. The critical review concluded that it was important to apply an integrative approach of combining theories to develop the theoretical framework for this study. Furthermore, a review of selected studies on protective behavioral intention and ethical decision-making provided support for the amalgamation of theories. Therefore, the incorporation of the strong points of each theory conceptualized the key constructs of the behavioral intention model.

Following the literature review, the research questions and corresponding research objectives were outlined in Chapter 3. Then, the initial research model was diagrammatically presented as Figure 3.1. Subsequently, the chapter detailed the background of the seven factors and sixteen constructs incorporated in the model. The inclusion of each factor and constructs and the proposed links between constructs were rationalized and justified through literature review. The sequential phase of the mixed method research design is illustrated in Figure 4.2. There are three distinct phases in the research process. As aforementioned, the first phase has been detailed in Chapter 2 and 3 of this thesis.

The second phase of this thesis begins with qualitative field study. The transcribed semi-structured interview data is analyzed using the two-phase content analysis method recommended by Miles and Huberman (1994). The field study findings are then used to fine-tune the initial research model. The advantage of this approach is that the factors and constructs in the conceptual model will be grounded in real life perspectives from field study participants.

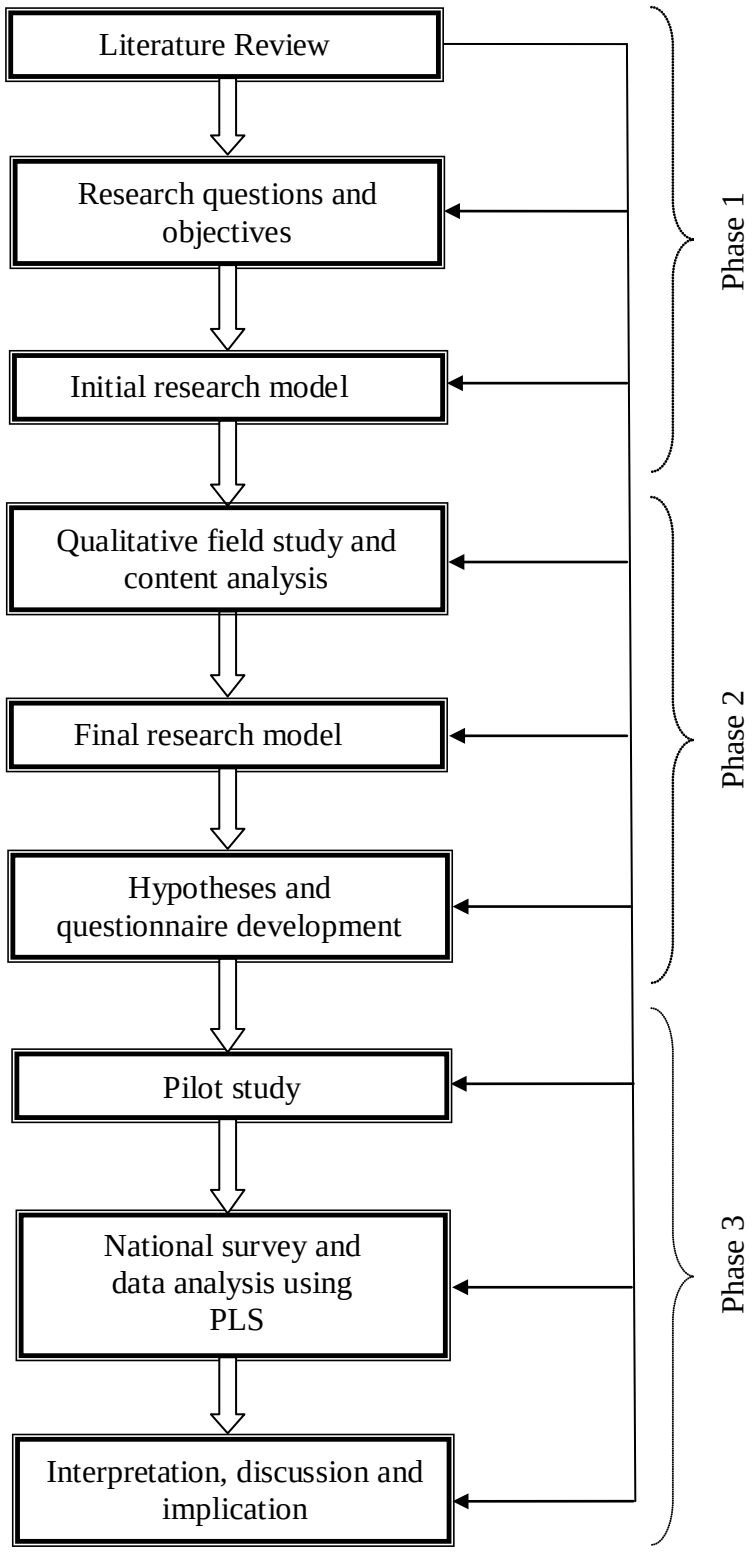

Figure 4.2: Sequential phase of the mixed method research design

The second phase continues with the formulation of hypotheses based on the finalized research model. The development of each hypothesis is supported by literature review and field study findings. Subsequently, a tentative survey instrument is designed through further literature analyses and consultation with experts in the field. The items are either be adopted, adapted, or newly developed.

The final phase of the research begins with the pilot study. The motivation of the pilot study is to test the initial questionnaire and enhance its applicability. The refined final questionnaire is used in a wide scale national survey. The gathered quantitative data is then analyzed. The Partial Least Square (PLS) based Structural Equation Modeling (SEM) approach is used to test both the measurement model and structural model. The results are then interpreted and discussed. The practical implications of the accepted hypotheses as well as the probable causes of hypotheses rejection are provided. The significant contributions of the research are highlighted. Finally, the limitations of the research as well as future research directions are detailed.

Based on the above explanations, the mixed method research process can be separated into two distinct stages namely exploratory and confirmatory stage (Figure 4.3). The exploratory stage involves three distinct steps. The first step includes intensive review of literature followed by the formation of the initial research model. Step 2 is the qualitative field study to develop a grounded behavioral model based on real life perspectives. The final step is the development of the final research model by comparing and contrasting the models from literature review and field study. The three step confirmatory stage begins with the development of the questionnaire and implementation of pilot study. The next step is the fine-tuning of the survey instrument and the utilization of this questionnaire in a national study. Finally, the survey results are analyzed using PLS. The discussion and interpretation of the results concludes the confirmatory phase.

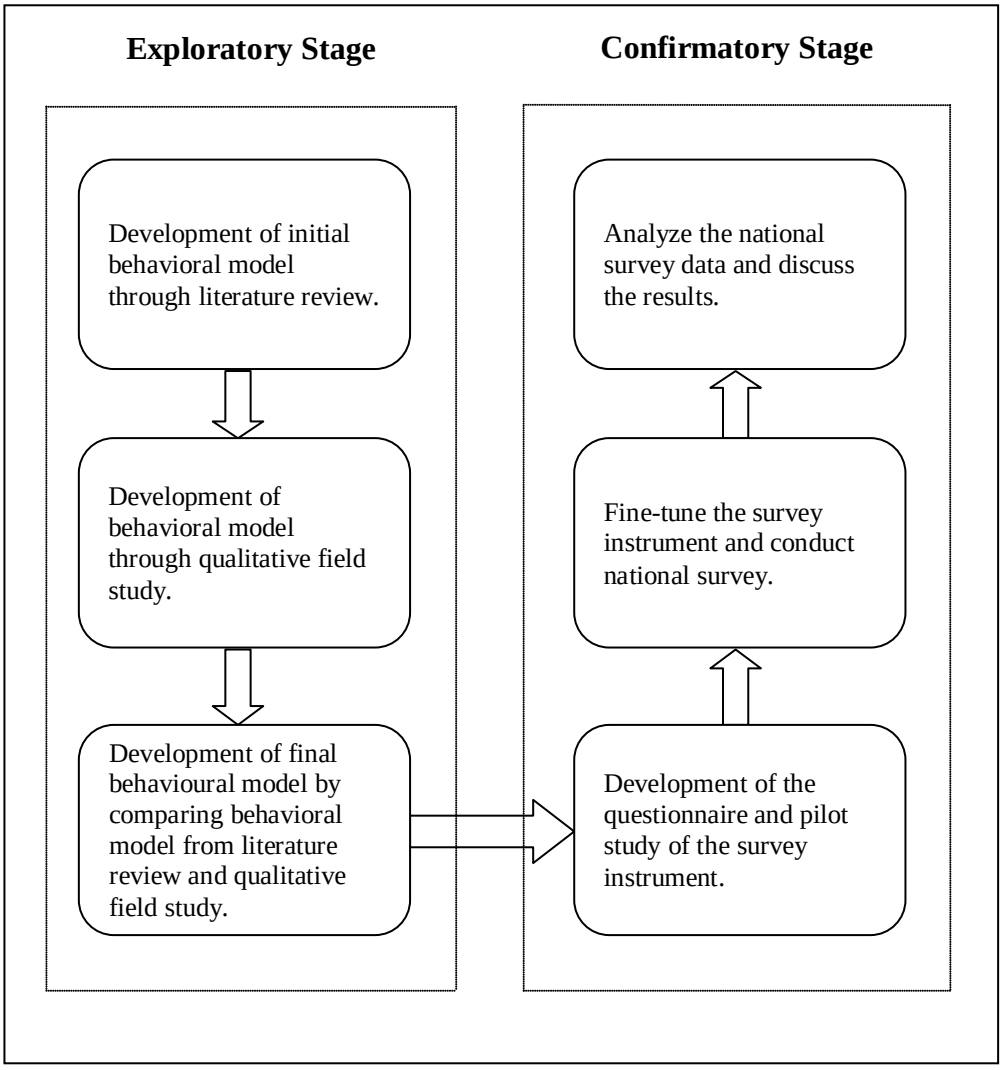

Figure 4.3: Two stages of mixed method research process

4.3.1 Qualitative Field study

The motivation for this phase of the study is exploratory. Comprehensive literature review has yielded the individual and organizational determinants of the behavioral intention to use forensic accounting services. However, as recommended by Kaplan and Maxwell (1994) a better understanding of a phenomenon can be achieved by obtaining authentic participants' points of view in a particular social and institutional context. Therefore, the justification for the field study is to capture, validate, and enhance the constructs identified in the extensive literature review. The goal is the fine-tuning of the initial conceptual model. Patton (1999) and Zikmund (2000)

suggested field study as an effectual method to explore existent participant's perspective in a specific setting. The approach that is used in this study is the semi-structured interview.

4.3.1.1 Sample Selection

The convenient sampling procedure was utilized for the field study sample selection. Zikmund (2000) confirmed that this is the usual procedure in business research. The focus of this research is the behavioral intention to use forensic accounting services by large Malaysian companies. The decision to employ forensic accounting services would be made at the top management level, which would certainly include the chief financial officer (CFO) and chief executive officer (CEO) of the organization and approved by the board of directors of the organization.

This research has decided to focus distinctively on the decision-making process of the CFO's of the organization. The rationale for this choice is because as pointed out by Stevens et al. (2005), CFO's have become an integral member of the top management team and they significantly influence the organization's major decisions. Stevens et al. (2005) also contend that the CFO's economic mindset is analogous among every member of top management. Furthermore, Ocasio and Kim (1999) analyzed that majority of CFO's have risen up the ranks to later on become CEO's.

The President of Chartered Institute of Management Accountants (CIMA), Lowth (2009, 21) reiterated, "the modern CFO has to take on roles beyond the finance role. As a member of the senior management team, he has to contribute his view of business as a financially-qualified business leader". Moreover, Lowth (2009) argued that current business globalization, competition, and regulation have compounded the CFO's role in risk management in addition to business strategy and performance. The decision to use forensic accounting services in fraud detection and prevention is a huge challenging financial endeavor involving risk management. Therefore, the organization would certainly be reliant on the professional insights and economic perspective of the CFO's to make this major decision.

Ten CFO's from large Malaysian companies were contacted based on convenience sampling. The CFO's were first given a clear description of the objectives and background of the study. The CFO's were also briefed on the voluntary nature of participating. All ten CFO's agreed to be interviewed for the qualitative data collection. To accommodate their busy schedules, the CFO's chose the time and location of the interviews.

4.3.1.2 Data Collection

Qualitative researchers have developed and refined specific key data collection procedures and techniques to support qualitative data collection (Lincoln and Guba 1985). One of the popular data collection methods in qualitative research is interviewing (Maykut and Morehouse 1994). The type of interview chosen for this research is the 'one to one' between the researcher and company CFO (Creswell 2008). Although this is considered as the most time consuming type of interview, it is ideal for this study because the CFO's are experienced articulate speakers who could comfortably share their view with others. Furthermore, the construction of meaning from the respondent's viewpoint allows for added depth and perspective that would not be fully captured in a closed ended survey response.

In addition, semi-structured interviews, which include both close and open-ended questions, will be conducted. According to Creswell (2008), the advantage of this type of interview is that the predetermined close-ended questions could gather data that may support the initial conceptual model. Moreover, the open-ended questions provide scope for the respondents to explain and provide personal, in-depth insights to supplement earlier close-ended responses

An interview protocol (Appendix 1) was developed based on the determinants of the behavioral intention to use forensic accounting services identified in the initial research model. The rationale for the protocol is to provide structured and focused data collection. The key components of the interview protocol are listed below:

- awareness of the role of forensic accounting services in the prevention and detection of fraud

- benefits and risks of using forensic accounting services
- attitude towards forensic accounting services
- intention to use forensic accounting services
- stakeholders pressure to use or not to use forensic accounting services
- severity of fraud to the organization
- susceptibility of the organization to fraud
- internal situational conditions in the organization that either facilitates or constraints the use of forensic accounting services
- external factors outside the organization that may enable or impede the use of forensic accounting services
- organizational characteristics unique to the organization that would influence the use of forensic accounting services

Prior to the actual field study interviews, the interview protocol was tested on one large Malaysian company CFO. This is to ensure the comprehensibility and flow of the questions. The CFO was encouraged to provide suggestions on improving the protocol. The transcribed interview was scrutinized. Minor fine-tuning of the interview protocol was done based on the transcription and feedback.

Finally, the actual field study was conducted on the selected samples. All respondents were contacted beforehand by telephone and given a brief description of the research. An e-mail of the research objectives was also sent to participants who wanted further information. Therefore, respondents were familiar with the research prior to the interviews and were able to answer the interview protocol with ease. Each interview took approximately one hour. After the participants granted the permission to record, all interviews were recorded with a MP3 player. The recorded data was transcribed the same day or the latest by the next day. This is to ensure the interview is still fresh in the researcher's mind. The imperative is to ascertain the accuracy of the transcription.

4.3.1.3 Data Analysis

Qualitative data analysis involves multifarious unique techniques depending on the type of data collected (Coffey and Atkinson 1994; Miles and Huberman 1994; Berg 2004). The content analysis approach was chosen for this study. Content analysis is the systematic examination of data that can be replicated by others (Wilkinson 2004). The sequential procedure for the two-stage content analysis technique recommended by Miles and Huberman (1994) is described in Figure 4.4.

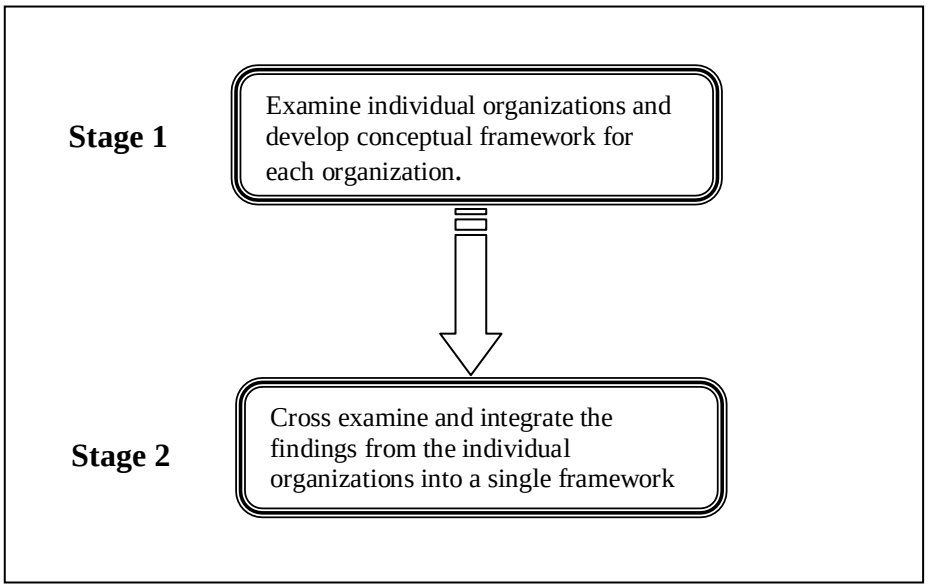

Figure 4.4: Stages of content analysis

The transcribed interviews generated more than hundred pages of scripts. In the first stage, the transcribed data was methodically scanned to expose recurring themes and patterns. Subsequently, the scrutinized data was accordingly categorized and labeled to generate the determinants of the behavioral intention to use forensic accounting services. The next step is the organization of labels from all ten interviews into matrix compartments. Similar labels were combined and clear meaning for each label as a factor and construct is constructed. The scripts were scrutinized over again to examine the relationships between the constructs for each company. The final product is the individual conceptual model on the behavioral intention to use forensic accounting services for each company.

The next stage cross-examines the individual conceptual models from stage 1. A raw table of factors, constructs, and links was outlined and analyzed to rationalize the development of the final conceptual model for this study. Only salient constructs were chosen and the exclusion of inconsequential constructs were justified. Results from the field study are shown in Section 5.4.

4.3.2 Empirical Pilot Study

According to van Teijlingen and Hundley (2001, 1), the term pilot study "refers to mini versions of a full scale study (also called a feasibility study) as well as specific pretesting of a particular research instrument". Therefore, the practicality, reliability, and validity of the survey instrument can be ascertained by the pilot study (Oppenheim 1992). In addition, Cohen, Manion, and Morrison (2000) emphasized that one of the key role of a pilot study is to review the wordings of the items. They argued that the wording of an item is the most important element that contributes to the success of the research. Based on these support a pilot study was conducted prior to the national survey.

4.3.2.1 Sample Selection and Data Collection

The pilot study was conducted on 30 CFO's from large Malaysian companies. Sample selection used convenience-sampling method. The CFO's were contacted via e-mail or phone and were given information on the objectives of the study and the two methods of participation either online or on hardcopy. The voluntary nature of participation was emphasized. All the CFOs agreed to take part. The CFO's were then sent an e-mail that was linked to a reliable and web-based research tool named 'survey monkey'. The URL link was http://www.surveymonkey.com/-s.aspx?sm=IfAUO2Ix5e4QfuXs 89rooQ-_3d_3d. A copy of the questionnaire was attached to the e-mail.

Twenty eight of the CFOs answered the survey online whilst the other two answered on paper. The two CFO who answered on paper, scanned the completed survey and sent it through e-mail. In addition to the formal survey, the respondents were also

asked to give feedback and comment specifically on the clarity and comprehensibility of the items and instructions. Moreover, feedback was sought on the flow, timing, and practicality of the survey.

4.3.2.2 Data Analysis

Data analysis of the pilot study involved reviewing the feedback given by the respondents. This is to gauge the clarity of the items, instructions, and layout. The items, which were found to be ambiguous or difficult to understand, were rechecked. The respondents view on the complexity and flow of the survey was investigated and minor adjustments were made. The web survey recorded the time taken to complete the questionnaire. Therefore, the average time gave the estimated time needed to complete the survey. This estimated time was included in the final questionnaire to be distributed in the national survey.

The pilot study also allowed the coding system for data entry and analysis to be tested. Descriptive analysis of the completed survey was done. This is to identify commonly misunderstood or non-completed items (Verma and Mallick 1999). There was no indication of any problem in this area. The analysis also gave valuable indications of the type of data that would be collected in the nationwide survey.

4.3.3 National Survey

4.3.3.1 Sample Selection

The sampling frame for the national survey was chief financial officer's (CFO) of large Malaysian companies. Large companies were defined as companies with sales turnover of more than RM5 million for the primary agriculture and service sectors and more than RM25 million for manufacturing and manufacturing related sectors (National SME Development Council 2005). A list of comprising 9,642 companies was generated with data obtained from the Inland Revenue of Board Malaysia.

4.3.3.2 Data Collection

Sekaran (2003) stated that mail survey is the most effective cost-benefit method of data collection especially when it involves large amount of information, large number of participants and a wide geographical area. Gosselin (1997) believed this method creates less pressure on participants to take immediate action in addition to providing the security of confidentiality and anonymity. Furthermore, the focus of the survey was on objective views and not subjective feelings.

The list of 9,642 large Malaysian companies obtained from IRBM had details of company addresses. The list also had direct personal e-mails of certain company CFO's. Altogether, 191 usable direct e-mail addresses were extracted from the list. Therefore, in addition to the mail survey, web survey was also utilized. The rationale is to increase the sample size with minimal cost requirement. The mail survey was distributed to 20% or 1,890 companies that were chosen through stratified random sampling after the companies with direct e-mail addresses were excluded. A reminder letter was sent after three weeks interval. The web survey commenced on the same day of the mail survey and an e-mail reminder was sent after two weeks interval. The response rates for both the mail and web survey are detailed in Section 7.3.2.

4.3.4 Data Analysis Techniques

Data analysis for this phase utilized the suggested Structural Equation Modeling (SEM) theory and applications by Barclay, Higgins, and Thompson (1995), Chin (1998), and Gefen, Straub, and Boudreau (2000). SEM is a second-generation data analysis technique that enables "researchers to answer a set of interrelated research questions in a single, systematic, and comprehensive analysis by modeling the relationships among multiple independent and dependent constructs simultaneously" (Gefen, Straub, and Boudreau 2000, 71). The Partial Least Square (PLS) based SEM is a second-generation regression model that integrates factor analysis and linear regressions is applied. Barclay, Higgins, and Thompson (1995, 287) advocated that the Partial Least Square (PLS) works by "simultaneously assessing the reliability and

validity of the measures of theoretical constructs and estimating the relationships among these constructs".

The advantage of PLS is that it makes minimal distribution assumptions. Furthermore, the PLS is more efficient in testing complex and sophisticated conceptual models. Barclay, Higgins, and Thompson (1995, 306) argued that the advancement in theoretical rigor has to be matched with increased methodological progress. They believed first generation statistical analysis restricts both creativity and depth of insights that can be drawn from quantitative results. Therefore, the authors emphasized that PLS is an integral research tool and challenged future researchers to learn to utilize PLS. Furthermore, they stated that PLS "is appropriate for exploratory research of into new and changing phenomena, it is powerful …."

The present research is an exploratory research. The study is exploring a new phenomenon, the behavioral intention to use forensic accounting services by large Malaysian companies in fraud detection and prevention. To the best of the researcher's knowledge, there is no prior research on the behavioral intention to use professional services including forensic accounting services. The literature review and field study has produced a complex theoretical and measurement model. Therefore, PLS was the ideal data analysis method applicable for this study.

Furthermore, another SEM based application, LISREL can only be used to measure latent variables that use reflective items (Chin 1998). Since this study would include both formative and reflective items, LISREL cannot be used for data analysis. Therefore, PLS which can be used for both reflective and formative measures was the best option for data analysis (Fornell and Bookstein 1982; Barclay, Higgins, and Thompson 1995; Chin 1995; Chin and Gopal 1995). The data analysis involves two distinct stages as illustrated in Table 4.1.

Table 4.1: Stages of data analysis in Partial Least Square (PLS)

Stage	Type of Item	Type of Measurement	Minimum Requirement
Stage 1 Assessment of Measurement Model	Reflective	• Convergent Validity	
		➢ Item Reliability	≥ 0.5
		➢ Internal Consistency	≥ 0.7
		➢ Average Variance Extracted (AVE)	≥ 0.5
		• Discriminant Validity	
		➢ AVE Analysis	Square root of the AVE of a construct is larger than its correlation with other constructs
		➢ Cross loading matrix	Loading of an item within a construct is greater than it's loading in any other construct
	Formative	• Indicator weight	Review construct conceptualization
		• Multicollinearity	VIF ≤ 10
Stage 2 Assessment of Structural Model	Reflective and Formative	• Coefficient of Determination	$R^2 \geq 0.1$
		• Test of Hypotheses	Significant t-value
		• Multi-group Analysis ➢ Smith-Satterthwaite test	Significant t-value

The first stage was the assessment of the measurement model through examination of convergent validity, discriminant validity and indicator weight. The reflective items were tested for convergent validity by determining item reliability, internal consistency, and average variance extracted (AVE) (Fornell and Larcker 1981). The minimum requirement for item reliability is 0.5 (Chin 1998), internal consistency is 0.7 (Fornell and Larcker 1981) and AVE is 0.5 (Fornell and Larcker 1981).

Convergent validity measured the correlations of items in a single construct. The goal is to ensure that items are correlated and measure the same underlying dimensions.

The discriminant validity of the reflective items was assessed by applying two analytical procedures suggested by Barclay, Higgins, and Thompson (1995). First, the square root of AVE of the items were calculated and this value is compared with inter construct correlation. Barclay, Higgins, and Thompson (1995) specified that discriminant validity is achieved when the square root of the AVE of a construct is larger than its correlations with other constructs. Second, the matrix of loadings and cross-loadings of items was generated. Gefen, Straub, and Boudreau (2000) stipulated that the loading of an item within the construct it intends to measure must be higher than its loading with any other construct. The two techniques examine the extent a construct differs from other constructs. The goal of discriminant validity is to ensure that all the constructs are mutually exclusive.

The formative items are not correlated. Therefore, convergent validity and discriminant validity cannot be applied. Instead, indicator weight, which describes the relative importance of the each item towards the formation of the construct, is calculated. The goal is to ensure that each item contributes towards the construct's formation. For items that have very low indicator weight, the items' contributions towards construct conceptualization are reviewed. As recommended by Diamantopoulos and Winklhofer (2001), conceptual considerations are prioritized before any indicator is eliminated. Next, multicollinearity is tested by calculating the Variance Inflation Factor (VIF). This is to ensure that each indicator has distinct influence on the intended latent variable (Diamantopoulos and Winklhofer 2001). The maximum threshold for the VIF is 10 (Kleinbaum et al. 1998). Therefore, items that did not meet the requirement of multicollinearity are eliminated.

The measurement model is assessed and adjusted by eliminating outstanding items. This is done repeatedly until the requirement for each criterion of convergent validity and discriminant validity is achieved. In addition, for the formative indicator, both indicator weight and multicollinearity were tested to delete problematic formative

items. The result of these rigorous procedures is an assessment model that can be applied in the second stage.

The second stage is the assessment of the structural model. The first step is the assessment of the explanatory power of the proposed model. This was done by estimating the variance associated with the endogenous constructs. The result determined how much the variance of large Malaysian companies' intention to use forensic accounting services can be explained by the constructs in this model. Falk and Miller (1992) proposed that the minimum R^2 should be 0.10. Finally, the hypothesis outlined in Chapter 6 was tested. The path coefficients and the positive or negative values of the hypothetical relationship were calculated. The goal was to determine the constructs that were significant in the model.

For the hypotheses on contextual factors, the moderating effects of type of industry, organizational size and organizational type was tested by utilizing the multi-group analysis method recommended by Chin (2004). First, the samples were subdivided into subgroups according to the construct that was being tested. Subsequently, the measurement model for each subgroup was examined and adjusted to achieve the requirements of convergent validity, discriminant validity and indicator weight. Then, the standardized path coefficients for each subgroup were calculated and the Smith-Satterthwaite t-test was applied to determine whether there were significant differences between the subgroups.

4.4 Summary

This chapter described the research methodology and design. First, the mixed method research paradigm and design was rationalized and explained. Then, the research process was illustrated and clarified. The summarized research process is as follows. After the literature review and formation of the initial research model, qualitative field study was conducted to fine-tune the conceptual model with real life contextual perspectives. CFO's from ten large organizations were interviewed. Qualitative data analysis involved the two-stage approach recommended by Miles and Huberman

(1994). This was followed by the formulation of the survey instrument. The pilot study on thirty CFO assessed the instrument for clarity and applicability. The refined instrument was then used in the national survey. The quantitative data analysis process utilized PLS based SEM technique. The PLS data analysis procedures for the measurement model and structural model was detailed in this chapter.

The first phase of the research process, which is the literature review and the formation of the initial research model, has been described in Chapter 2 and 3. Therefore, this chapter continued with the descriptions of the subsequent three major stages comprising of field study, pilot study, and national survey. Details of sample selection, data collection, and data analysis for each stage were presented. In the next chapter, the operation of the second phase of the research, the qualitative field study including the results of data analysis will be discussed. Chapter 5 will conclude with the description of the final research model that will be tested in the national survey.

CHAPTER 5
FIELD STUDY AND MODIFIED RESEARCH MODEL

5.1 Introduction

This chapter describes the qualitative phase of the research. The field study process, which includes sample selection, data collection, and data analysis is first detailed. This is followed by the interpretation of results and discussion. The primary aims of this phase are to confirm the various factors and constructs that have been identified in the literature review as well as to explore salient new factors and constructs. The results of the field study are utilized to modify and fine-tune the initial research model. The outcome is the final research model that would be used in the quantitative phase of this study.

5.2 Operationalization of the Field Study

5.2.1 Qualitative Research

The mixed method approach combines both quantitative and qualitative techniques in a single study. The primary motivation for this method is to complement the strengths and overcome the weaknesses of quantitative and qualitative techniques (Creswell and Clark 2007). The sole focus of quantitative research on theory and hypothesis testing could lead to confirmation bias. This is because the theories and constructs do not reflect local understandings. Hence, the qualitative method would

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complement the quantitative data by giving real-world insights that could not be gathered through literature alone. On the other hand, qualitative method on its own cannot be used for generalization and to make predictions. Furthermore, qualitative data can be influenced by the researcher's personal bias.

Therefore, this study utilizes the mixed methodology that takes in the best of both approaches to determine the predominant factors that influence the behavioral intention to use forensic accounting services. First, literature review combined with the qualitative phase of the research identify the predicted determinants of the behavioral model. Subsequently the quantitative phase confirms the significance of the identified constructs. This sequence of qualitative linked by quantitative phase of research specifically in exploratory studies has been widely supported by past researchers (Xu 2003; Hofmeyer 2005; Creswell 2008; Jackson 2008).

5.2.2 Sample

CFO's from ten companies were approached to take part in the field study. Convenience sampling based on personal contacts was utilized. The rationale for choosing CFO's as samples was detailed in Chapter 4. The selection criterion was that the CFO's must be from large companies. Prior to interview, participants were briefed on the objectives of the research and its significance. The voluntary nature of participation was conveyed to the samples. The CFOs agreed to voluntarily participate.

5.2.3 Data Collection

The aim of the qualitative data is to provide real-world views from the CFO's on the determinants of the behavioral intention to use forensic accounting services in fraud detection and prevention. The one to one interview method was selected because the CFO's who are experienced corporate players are deemed to provide perceptive and clear responses. Furthermore, in the business world, CFO's are recognized as professionals, articulate and keen to share ideas with others (Lowth 2009). In addition, the semi-structured interview technique was chosen because this would

narrow down the respondent's scope of responses and elicit succinct information sought for this research. At the same time, this technique allows the freedom of probing for further in-depth explanations and details in specific key areas.

An interview protocol was formulated to assist data collection. The protocol started by stating the dominant questions for this research:

> "What are the predominant factors that influence the intention to use forensic accounting services for the prevention and detection of fraud by large Malaysian companies?"

The rationale is to present the mainframe of the study first before going into the details of the behavioral intention. The protocol then proceeded with ten leading questions. Within each main question, there were subsequent secondary or probing questions to provide imperative depth and insight needed for a better understanding of the extracted responses. Prior to the interviews, the protocol was pretested on one CFO from a large Malaysian company. This is to find out the flow, appropriateness, comprehensibility, and complexity of the questions.

The feedback necessitated some minor adjustments to the wordings of the questions as well as the addition of three new probing questions. Overall, the questions were verified to be effective in obtaining the required information. The participants were asked to schedule the interviews as per convenience and choose the place. This is to avoid or minimize any disruption to their working agendas. Prior to the interview, the participants were given a brief description of the research background and objectives. The participants who wanted more details about the research and the interview process were sent an email with detailed information on the study and the semi-structured interview process of the study.

All interviews were successfully conducted. The participants were comfortable to talk about their own and their organizations' perceptions on the behavioral intention to use forensic accounting services in fraud detection and prevention. The interview session for each interview took approximately 45 minutes to an hour. Prior to the interview, the participants gave permission for the sessions to be recorded by an MP3 player. The recorded interview was immediately transcribed on the same day or the

following day to capture significant cues while they were still fresh in the researcher's memory.

5.3 Data Analysis

The ten transcribed interviews yielded 131 pages of scripts. A sample of the transcript is included in Appendix 2.The literature on qualitative data analysis recommends the use of specific tools and techniques to analyze the data (Miles and Huberman 1994; Berg 2004). It is vital that the chosen technique aligns with the objectives of the research (Willis 2007). Since this is an exploratory research to investigate the determinants of a unique behavioral intention, this study will utilize the content analysis technique suggested by Miles and Huberman (1994) to analyze the behavioral model. The goal is to scrutinize the transcripts and determine key factors, constructs and the links between constructs.

The two stages of content analysis detailed by Miles and Huberman (1994) was carried out. Stage one is the analysis of individual scripts whilst stage two analyzes across the scripts. Both inductive and deductive logical thinking skills were applied to extract and classify the factors and constructs. The detailed sequential procedure of stage one is illustrated in Figure 5.1. Stage 1 begins with the inspection and dissection of the interview transcripts to extract key patterns/themes and subsequently identifying themes by using key words. This is an inductive process. Next, the key words are labeled or categorized into salient factors and corresponding constructs. The interview transcripts are revisited to search for links between the identified constructs. After that, these factors, constructs, and links were compared to and matched with parallel features derived through literature. Thus, the factors and constructs were revised and updated in this deductive process. However, it was important to ensure that all the factors, constructs, and links obtained through the qualitative study were sustained. Subsequently, the factors, constructs, and links are diagrammatically represented as theoretical frameworks. The final product is a unique behavioral model for each individual company.

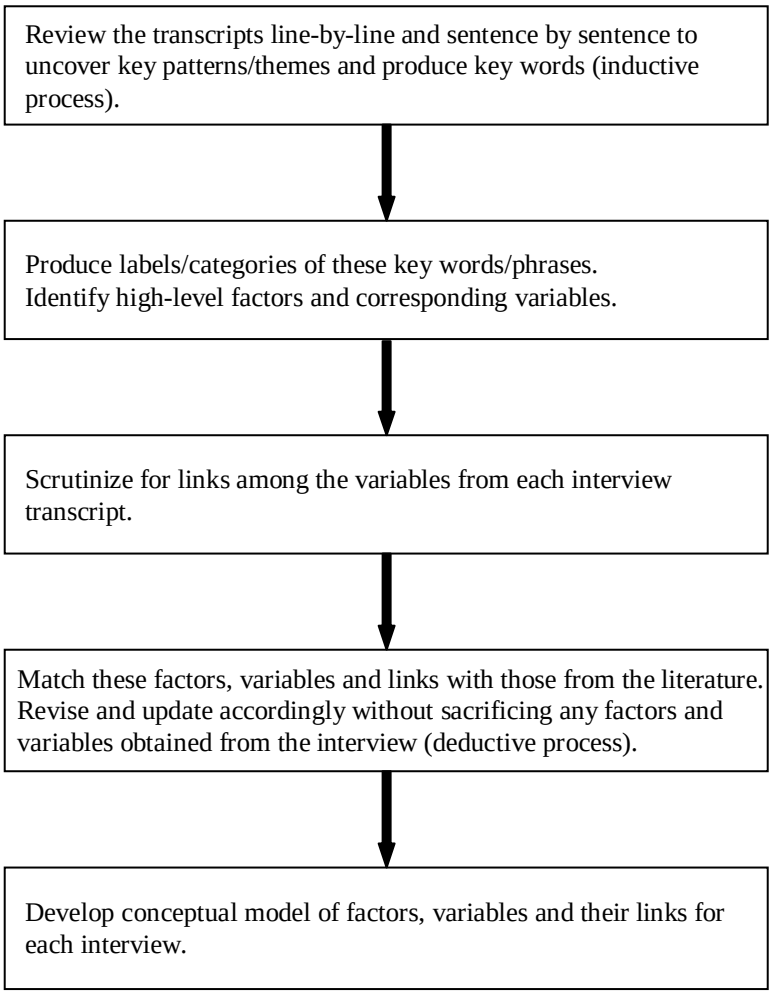

Figure 5.1: Stage 1 - Analysis of individual scripts

The second stage is the cross analysis of all the transcripts to combine the salient factors, constructs and links to develop a comprehensive integrated model. The sequential procedure is illustrated in Figure 5.2. Stage 2 begins by scrutinizing the ten conceptual models. The aim is to identify the similarities and differences between the constructs. Thereafter, similar constructs are amalgamated and given a specific name. However, unique constructs are not sacrificed. These distinct constructs are aptly represented and retained. Subsequently a matrix of factors, constructs, and links are tabulated to give a clear view of the findings. In depth analysis of this matrix provides the justification for the elimination of incongruous and inconsistent constructs. The preceding salient factors, constructs, and links chosen provide the basis for the development of the final conceptual model for this study.

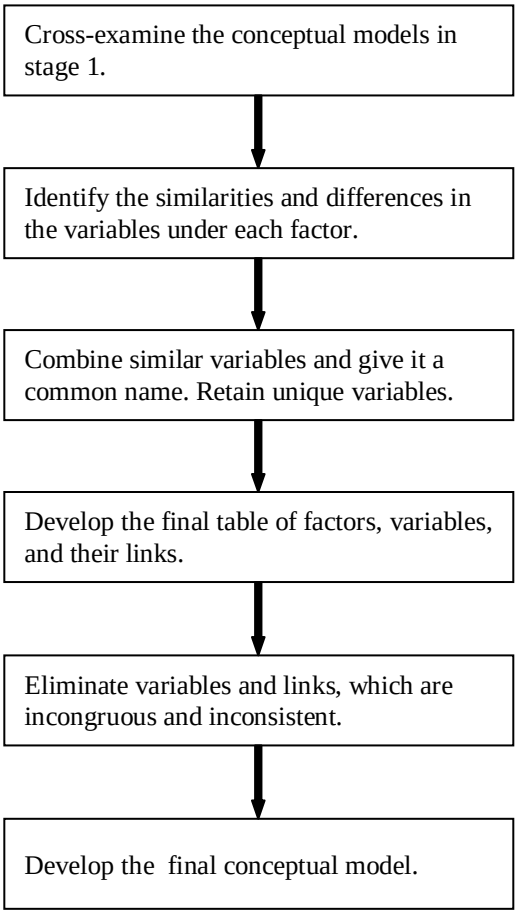

Figure 5.2: Stage 2 - Cross analysis of all transcripts

5.4 Results and Interpretations

5.4.1 Sample Demographics

The demographic information on the companies that participated in the field study is presented in Table 5.1. The industry type of the participants' organization widely varies. However, two were from the financial sector of banking and insurance. The type of organization was evenly distributed with half of the samples from public listed companies whilst the other half were from private limited company. Based on company turnover, all the participants in the study were CFO's of large companies. However, only three of the companies have utilized forensic accounting services in fraud detection and prevention.

Table 5.1: Pilot study demographics

Participant	Industry Type	Organization Type	Turnover	Utilized FAS
1	Hotel	Public Listed	> RM230 million	No
2	Property Development	Public Listed	> RM155 million	No
3	Banking	Public Listed	> RM1 billion	Yes
4	Consumer Products	Public Listed	> RM825 million	No
5	Manufacturing	Public Listed	> RM45 million	No
6	Investment Holding Company	Private Limited	> RM25 million	No
7	Information Technology	Private Limited	> RM25 million	Yes
8	Insurance	Private Limited	> RM150 million	Yes
9	Real Estate	Private Limited	> RM450 million	No
10	Trading	Private Limited	> RM100 million	No

Note: FAS is forensic accounting services

5.4.2 Factors and Constructs of Behavioral Intention to Use Forensic Accounting Services

The content analysis technique identified the factors, constructs, and measures for each individual company. The results are depicted in Table 5.2. Altogether 7 factors, 21 constructs and 76 measures were derived. If feasible, the broad factors and constructs were aligned with the factors and constructs uncovered through literature review. Most of the 76 measures were more specific and representative of the behavioral intention to use forensic accounting services. Section 5.5 provides actual statements of participants that indicates the existence of some of the constructs and measures.

Table 5.2: Factors and constructs of behavioral intention model

	Constructs	Measures	1	2	3	4	5	6	7	8	9	10
1.	**External Factors**											
	Professional Bodies	Conducting seminars and courses	✓		✓	✓	✓	✓				✓
		Publishing journals and magazines	✓			✓	✓	✓		✓		
		Newsletter distribution		✓	✓							
		Flyers distribution			✓						✓	
	Accounting Firms	Publishing fraud survey report	✓	✓	✓							
		Flyers distribution	✓		✓					✓		
		Conducting survey	✓									
		Newsletter distribution		✓								
		Advertisement in media				✓						
		Conducting seminars and courses								✓		
		Information through auditors									✓	✓
	Media	Articles published in magazines and journals	✓					✓		✓		
		Newspaper articles		✓				✓			✓	✓
		Financial dallies articles		✓								
	Government	Requirement on risk management	✓				✓					
		Regulatory authorities making emphasis on forensic accounting services		✓								
	Private Individual	Seminar information on flyers/newspapers					✓					
		Organize internal courses								✓		
	Own Experience	Involved in internal audit			✓	✓						
		Used forensic accounting services							✓			
2.	**Cognitive Factors**											
	Awareness	Familiar with the benefits of using forensic accounting services	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Aware of the risks involved in using forensic accounting services	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Perceived Benefits	Tightening the internal control process and procedure	✓	✓	✓	✓	✓	✓	✓	✓		✓
		Deterrence of fraud	✓		✓	✓	✓	✓	✓	✓	✓	✓
		Enhance the image of the firm	✓		✓		✓	✓		✓	✓	✓
		Recovery of Cash and Asset		✓	✓	✓			✓		✓	✓
		Forensic accountant has specialized skill & knowledge		✓								
		Ensuring compliance with government laws & regulations				✓						
		Gathering of evidence						✓	✓		✓	

	Constructs	Measures	1	2	3	4	5	6	7	8	9	10
	Perceived Risks	Social risk	✓	✓		✓	✓	✓		✓	✓	
		Financial Risk	✓	✓		✓	✓					✓
		Leakage of sensitive information	✓		✓			✓				
		Restrict or Curtail decision-making			✓		✓			✓	✓	
		Performance risk			✓		✓					✓
	Attitude	They do have a role to play	✓		✓			✓				✓
		Good to have this service based on benefits		✓	✓	✓			✓			
		Risky to have this service based on perceived risks	✓	✓		✓	✓	✓				
		Have positive feeling based on benefits		✓	✓		✓	✓	✓	✓	✓	
		Have negative feeling based on risks					✓				✓	✓
3.	**Normative Factor**											
	Stakeholder Pressure	Shareholder demand	✓			✓	✓	✓	✓		✓	✓
		Board of Directors pressure	✓				✓	✓				
4.	**Internal Control Factors**											
	Financial Cost	Services are not cheap	✓	✓	✓		✓	✓	✓			
		Have to take cost into consideration	✓	✓			✓	✓	✓			✓
	Organizational Ethical Climate	Adhere to code of ethics	✓				✓					✓
		No room for personal interest	✓									
		High standard for governance		✓	✓							
		Expect everybody to act ethically and with integrity			✓	✓	✓		✓	✓		✓
		Any fraud would not be tolerated				✓			✓	✓		
	Strength of Internal Control	Procedure and policies are adhered	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Risk assessment	✓	✓		✓	✓	✓	✓	✓	✓	✓
		Segregation of duties	✓		✓						✓	✓
		Monitoring		✓		✓	✓	✓	✓	✓		
		Communication		✓		✓		✓		✓		
		Level of authorities			✓		✓	✓		✓		
		Organization structure			✓							✓
		Competent and independent board of directors			✓							
		Control environment				✓						
	Prior Experience	Success cases will encourage use of forensic accounting services							✓			

	Constructs	Measures	1	2	3	4	5	6	7	8	9	10
5.	**External Control Factor**											
	Government Pressure	SC guideline indirectly forces to use forensic accounting services	✓		✓	✓			✓		✓	✓
		Insist using forensic accounting services when fraud occurs	✓				✓	✓		✓		
		Numerous penalty set for non compliance							✓			
6.	**Threat Perception Factors**											
	Perceived Severity	Monetary loss	✓	✓	✓	✓	✓		✓	✓	✓	✓
		Low employee morale	✓	✓	✓		✓		✓			
		Impairs efficiency and productivity	✓	✓	✓		✓		✓			
		Damage company image	✓		✓	✓	✓	✓		✓	✓	✓
		Loss of customer	✓		✓					✓	✓	✓
		Cost of investigation		✓		✓		✓		✓		
	Perceived Susceptibility	Worry susceptible to fraud							✓	✓	✓	
		Don't worry susceptible to fraud	✓	✓	✓	✓	✓	✓				✓
7.	**Contextual Factors**											
	Organizational Size	Turnover of the organization	✓	✓		✓	✓	✓	✓		✓	✓
		Number of employees in the organization							✓			✓
	Industry type	Different type of industry different level of fraud	✓	✓		✓					✓	✓
		Complexity	✓		✓		✓					
		Depends whether regulated or not			✓					✓		
	Organizational Type	Listed company accountable to stakeholder	✓	✓	✓				✓		✓	
		Private company tightly controlled and less risk	✓	✓								

5.4.3 Links among the Constructs

The summary of data analysis depicting the links among the behavioral intention constructs is presented in Table 5.3. The information on the links between constructs was extracted from the content analysis of scripts. The excerpts from the transcripts below provides examples of links mentioned by the interview participants:

> "Every company put emphasis on internal control as what my company is doing. Our internal control and control assurance are very good. That is the reason why we are not using any forensic accounting services at present."
> (**Strength of Internal Control → Intention)**

> "In Malaysia, I am sure you know that there is a body called Internal Audit Malaysia. I am a fellow there and am always aware that they promote forensic accounting services through their newsletter."
> **(Professional Bodies → Awareness)**

The links between external factors and awareness was widely supported. The highest was 90% for professional bodies to awareness followed by accounting firms and media at 70% each. Only 30% of the participants confirmed the link between government to awareness and own experience to awareness. Furthermore, low minority of two participants agreed on the link between private individual and awareness.

Next are the links between the cognitive factors. Awareness to perceived benefits and perceived benefits to attitude had the overwhelming support of all the participants. Although the majority agreed upon the awareness to perceived risks link, only one participant differed in opinion. In addition, two participants disapproved the link between perceived risks and attitude. However, the theoretically sound link between attitude and intention had the general agreement of all the participants. The link between the normative factor, stakeholder pressure, and intention was supported by 70% of the participants.

Table 5.3: Links between constructs

	Construct Link	1	2	3	4	5	6	7	8	9	10
1.	Professional Bodies → Awareness	✓	✓	✓	✓	✓	✓	X	✓	✓	✓
2.	Accounting Firms → Awareness	✓	✓	✓	✓	X	X	X	✓	✓	✓
3.	Media → Awareness	✓	✓	X	X	✓	✓	X	✓	✓	✓
4.	Government → Awareness	✓	✓	X	✓	X	X	X	X	X	X
5.	Private Individual → Awareness	X	X	X	X	✓	X	X	✓	X	X
6	Own Experience → Awareness	X	X	✓	✓	X	X	✓	X	X	X
7.	Awareness → Perceived Benefits	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8.	Awareness → Perceived Risks	✓	✓	✓	✓	✓	✓	X	✓	✓	✓
9.	Perceived Benefit → Attitude	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10.	Perceived Risk → Attitude	✓	✓	✓	✓	✓	✓	X	X	✓	✓
11.	Attitude → Intention	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12.	Stakeholder Pressure→ Intention	✓	X	X	✓	✓	✓	✓	X	✓	✓
13.	Financial Cost → Perceived Risks	X	✓	X	X	✓	✓	X	X	X	✓
14.	Financial Cost → Intention	✓	✓	✓	X	X	✓	✓	X	X	✓
15.	Organizational Ethical Climate → Intention	✓	✓	✓	✓	✓	X	✓	✓	X	✓
16.	Strength of Internal Control → Intention	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
17.	Prior Experience → Intention	X	X	X	X	X	X	✓	X	X	X
18.	Government Pressure → Intention	✓	X	✓	✓	✓	✓	✓	X	✓	✓
19.	Severity → Intention	✓	✓	✓	✓	X	X	✓	✓	✓	✓
20.	Susceptibility → Intention	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21.	Organizational Size → Intention	✓	✓	X	✓	✓	✓	✓	X	✓	✓
22.	Industry type → Intention	✓	✓	✓	✓	✓	X	X	✓	✓	✓
23.	Organizational Type → Intention	✓	✓	✓	X	X	X	✓	X	✓	X

Note: ✓ = **Link exist**
X = Link does not exist

Although all the participants established the link between the threat perception factor, perceived susceptibility, and intention, only 80% viewed that there was a link between perceived severity and intention. Government pressure to intention, the sole external control factor link had 80% approval. As for the internal control factors, link between strength of internal control system and intention was agreed upon by all whilst organizational ethical climate to intention and financial cost to intention had

80% and 60% support respectively. In addition, the link between financial cost and perceived risks was pointed out by 40% of the participants. However, the link between the final internal control factor, prior experience, and intention only had one participant's support. All the contextual factors' link to intention was reasonably supported. Organization size to intention and industry type to intention had each 80% approval whilst organizational type to intention had 50% confirmation.

5.4.4 Individual Conceptual Models

The individual company's behavioral model is then drawn based on the first stage of analysis. Table 5.2 and 5.3 were scrutinized and conceptual models were drawn to diagrammatically represent the data. The conceptual model for each company is presented in Figure 5.3 to Figure 5.12. Finally, the individual models were integrated and presented as the combined behavioral intention model from the field study in Figure 5.13. Altogether seven factors and twenty one constructs were incorporated in this final model.

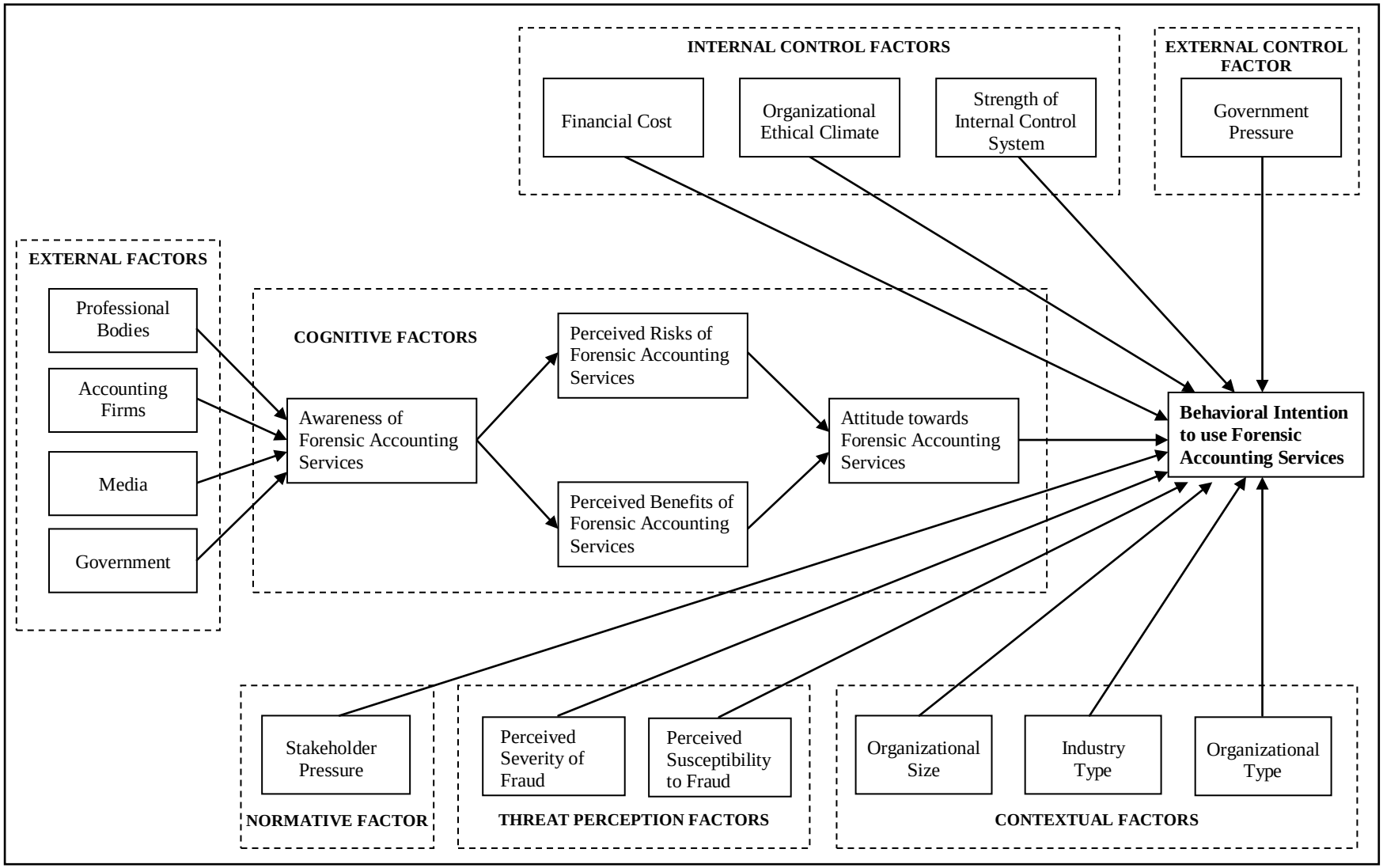

Figure 5.3: Behavioral intention model of Company 1

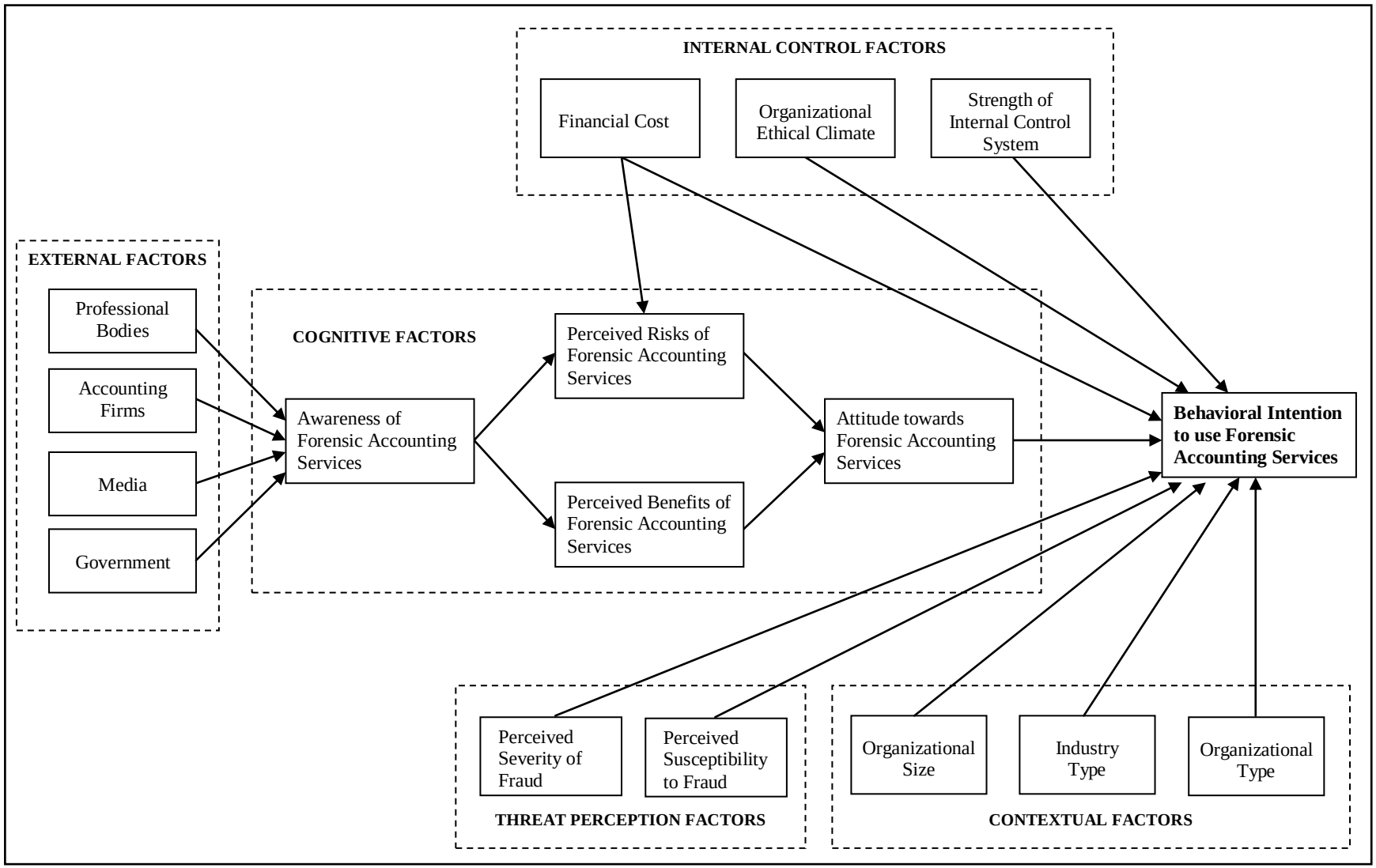

Figure 5.4: Behavioral intention model of Company 2

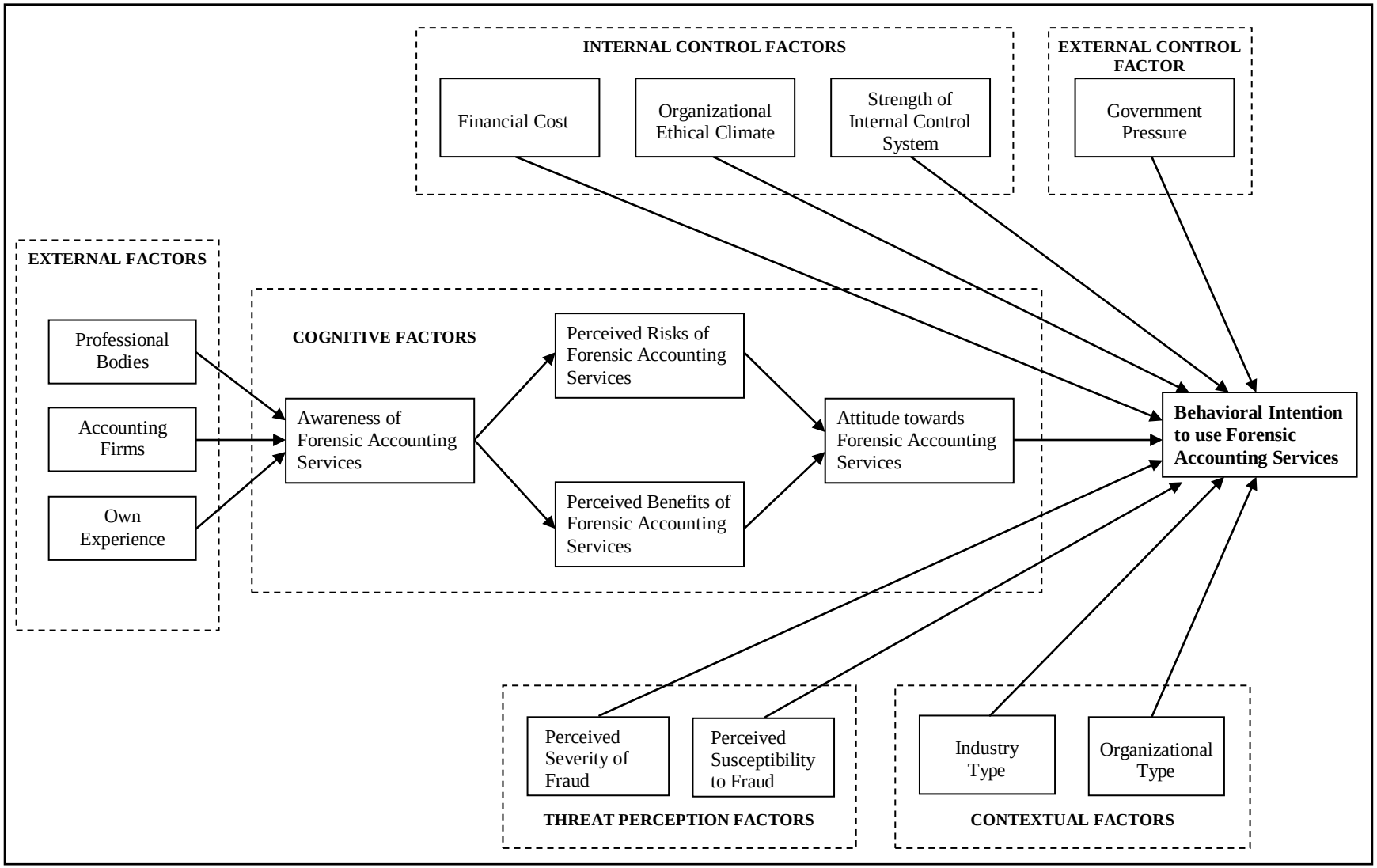

Figure 5.5: Behavioral intention model of Company 3

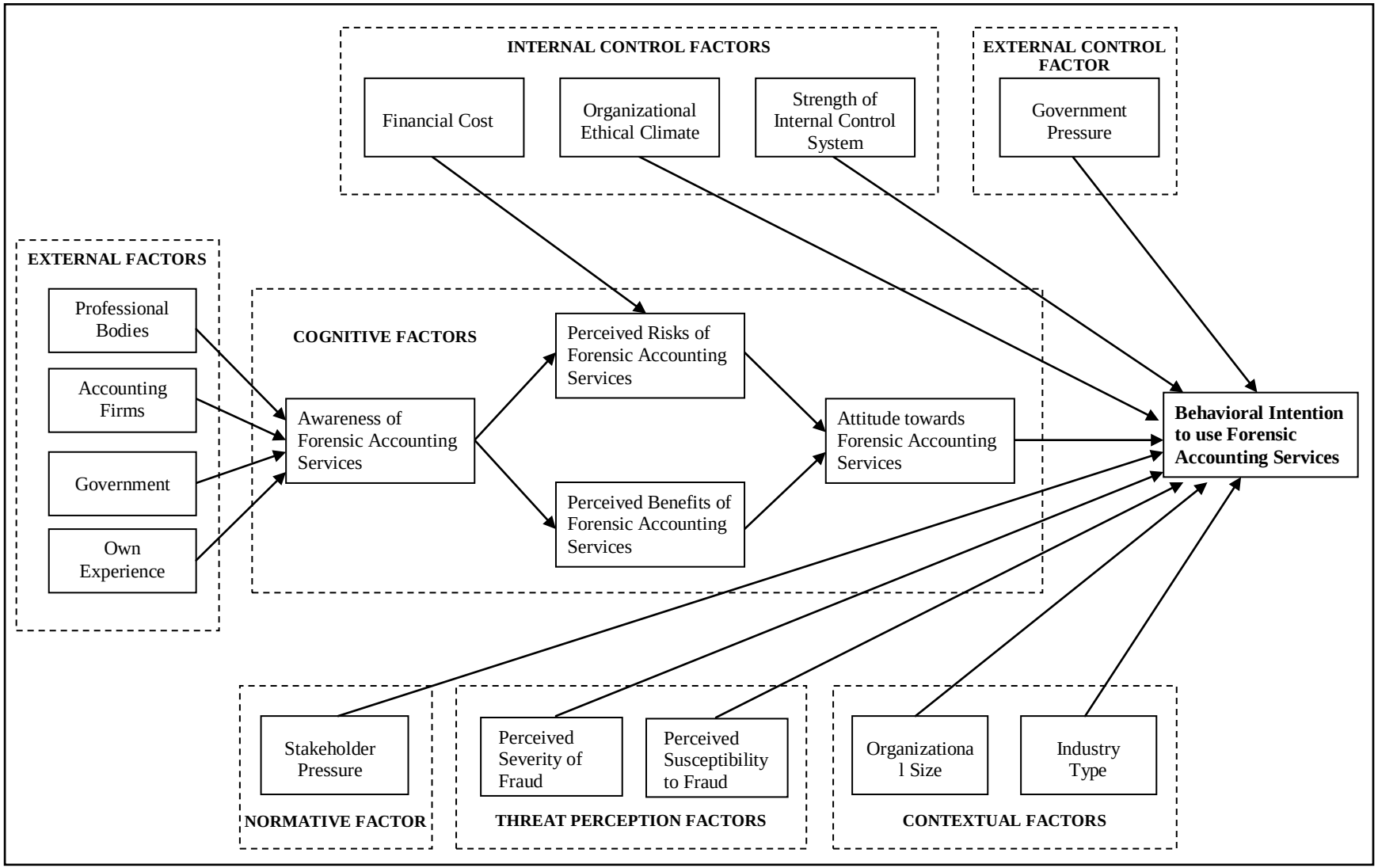

Figure 5.6: Behavioral intention model of Company 4

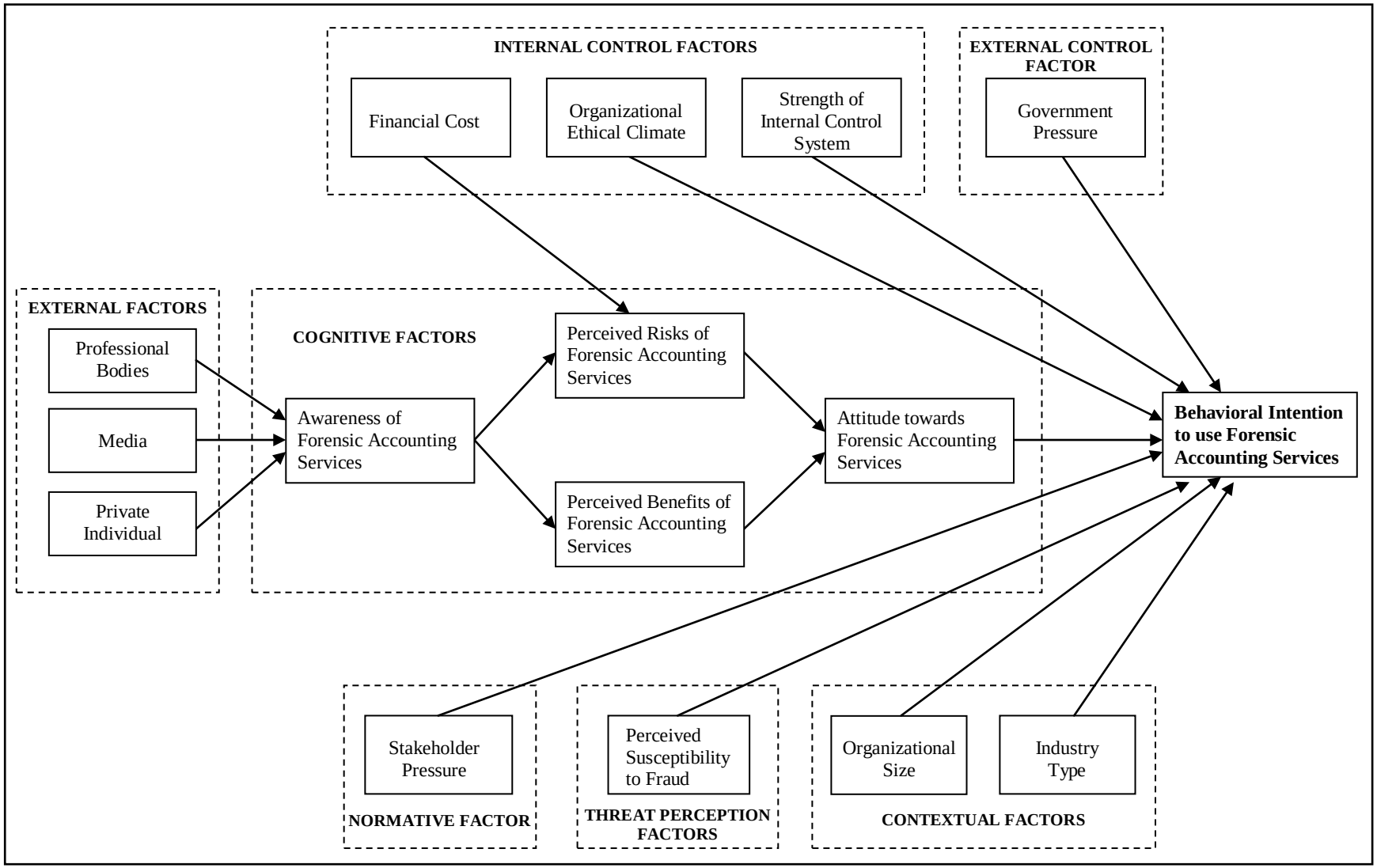

Figure 5.7: Behavioral intention model of Company 5

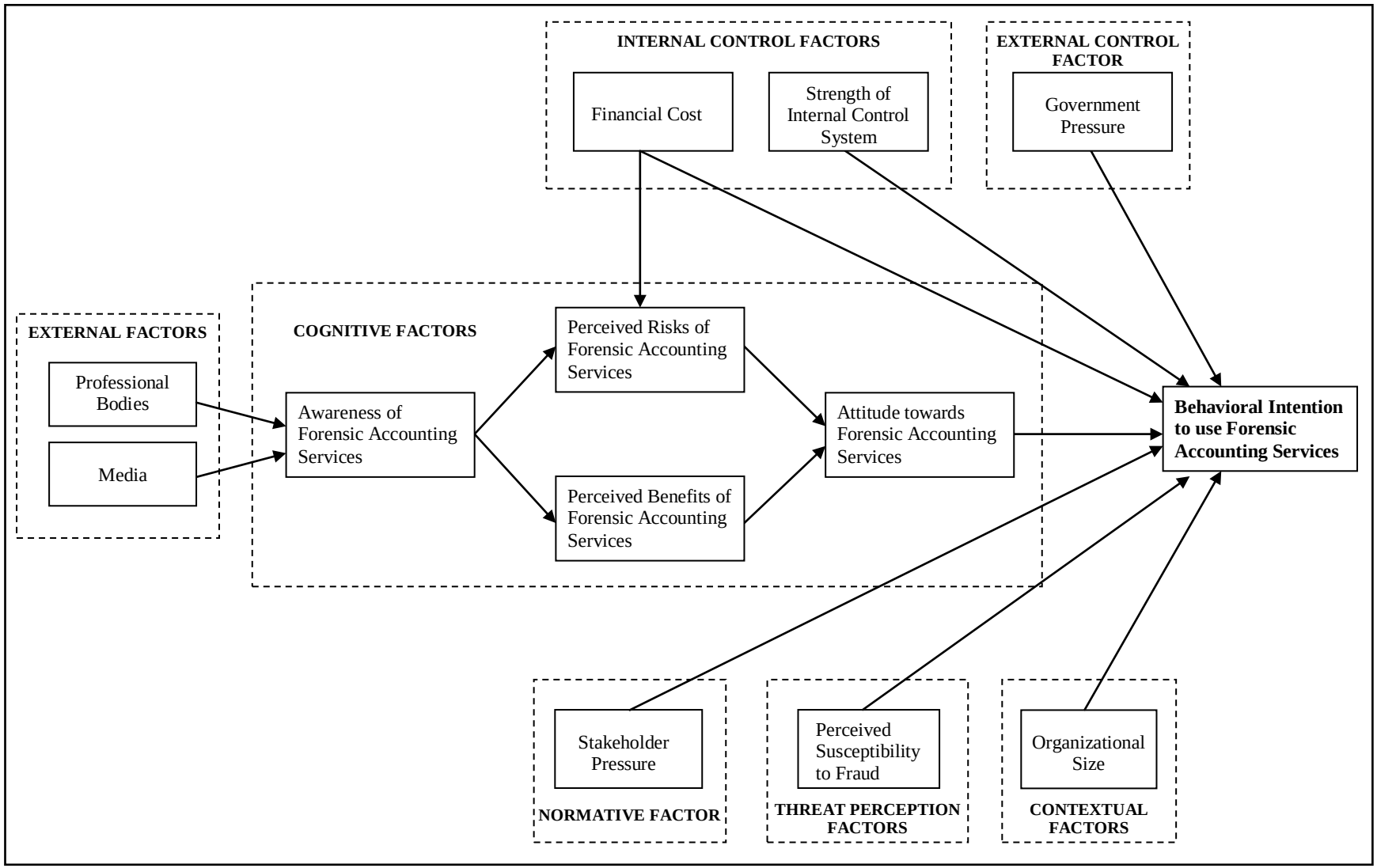

Figure 5.8: Behavioral intention model of Company 6

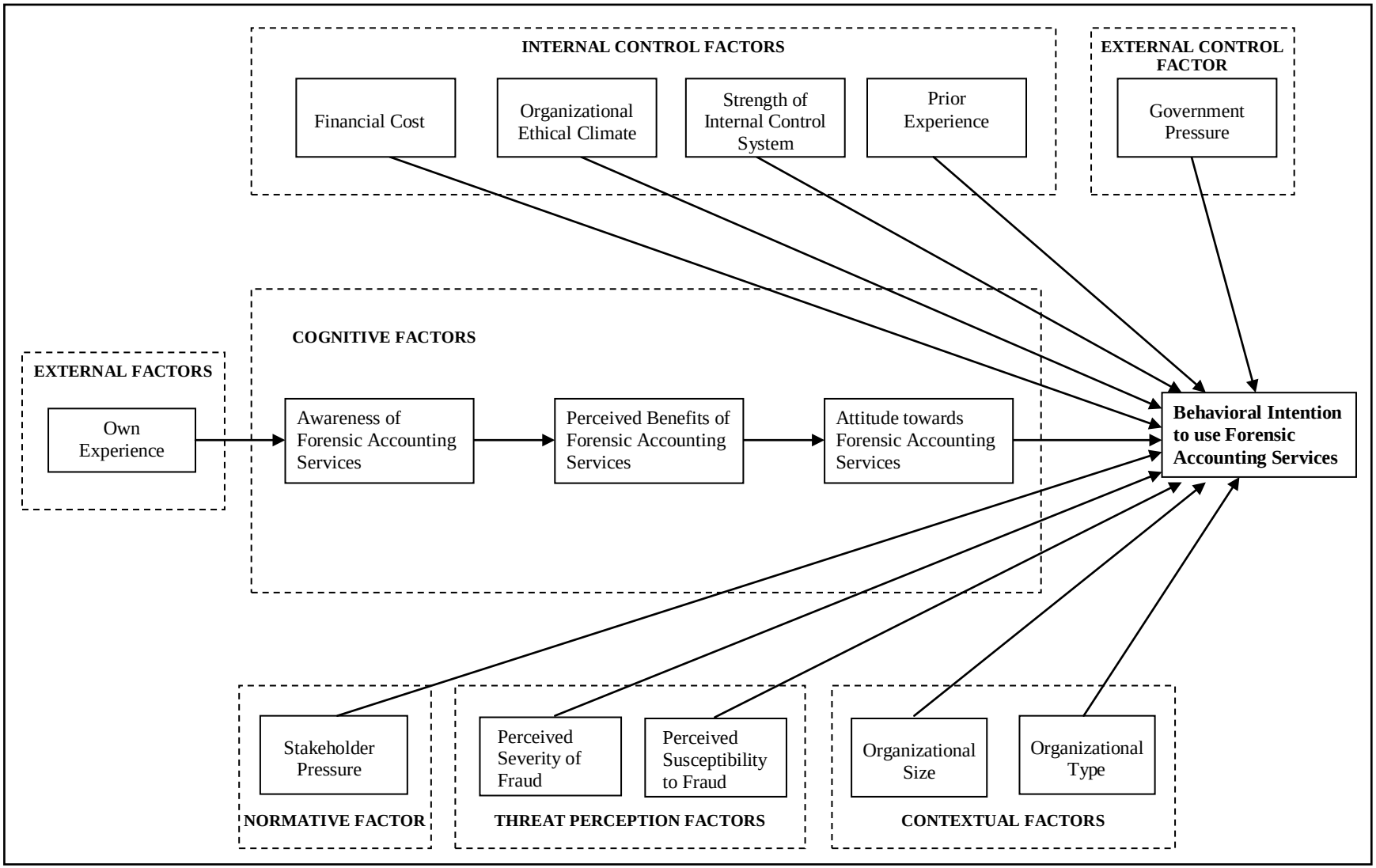

Figure 5.9: Behavioral intention model of Company 7

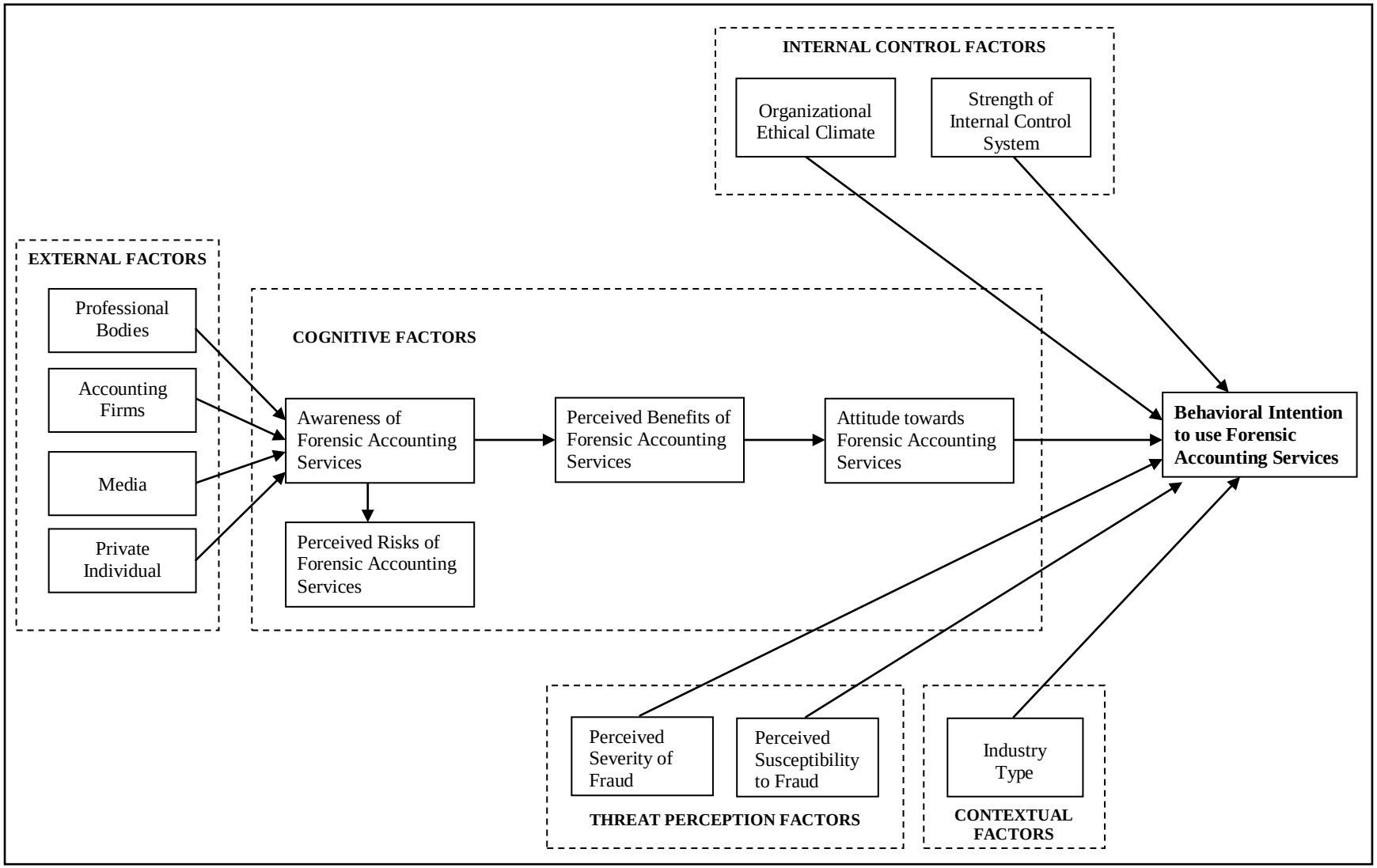

Figure 5.10: Behavioral intention model of Company 8

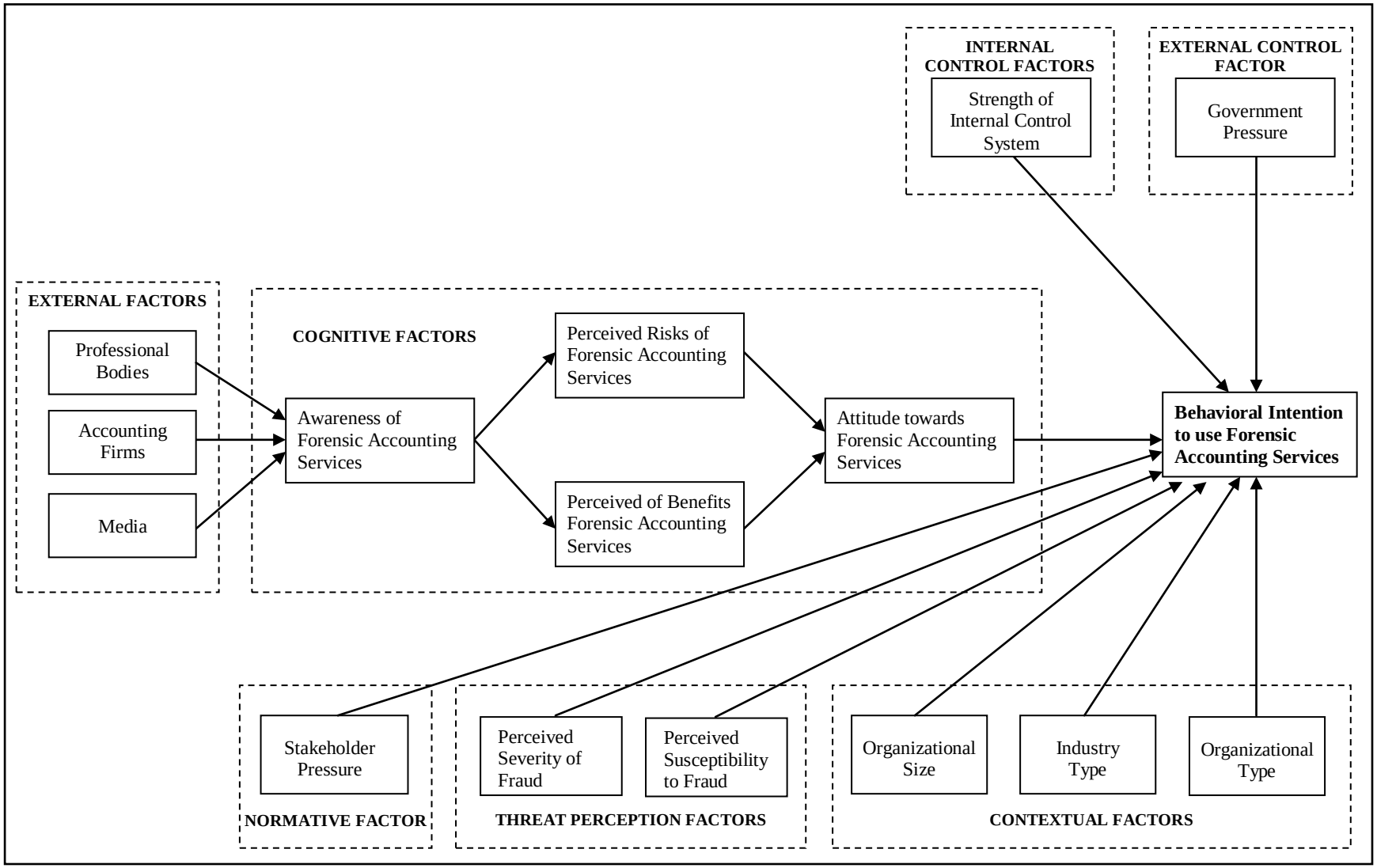

Figure 5.11: Behavioral intention model of Company 9

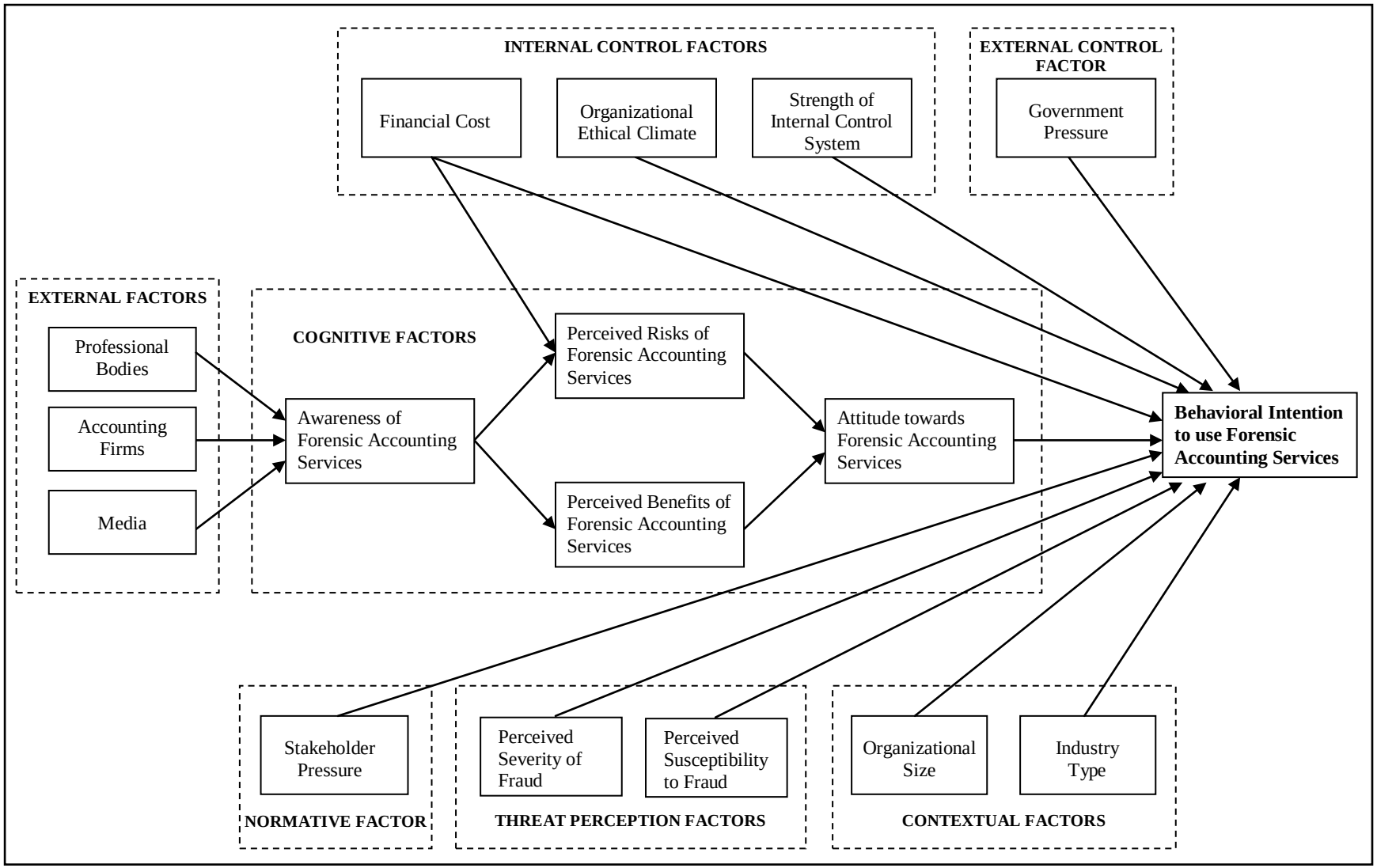

Figure 5.12: Behavioral intention model of Company 10

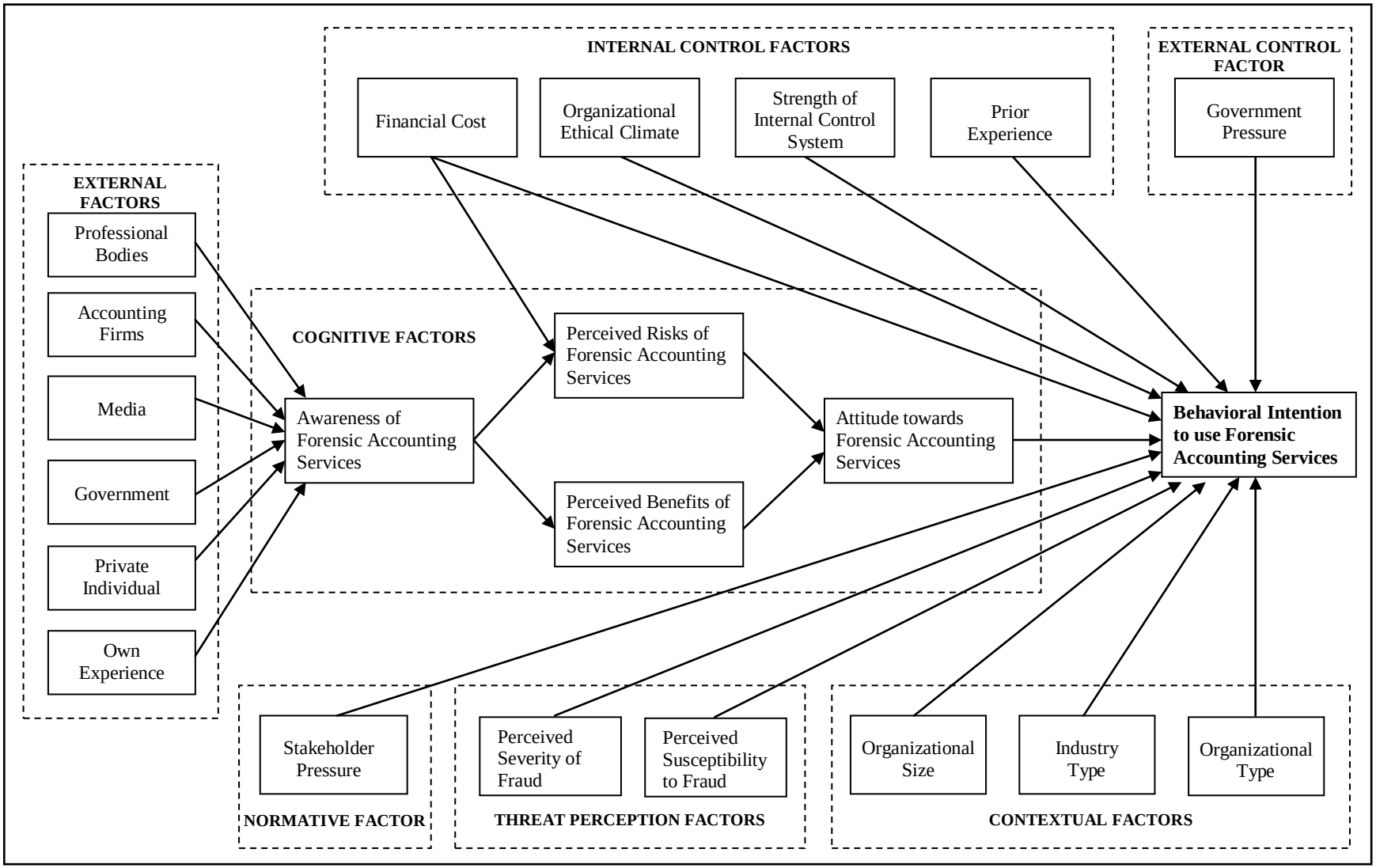

Figure 5.13: Combined behavioral intention model from the field study

5.4.5 Cross Examination of Conceptual Models

The second stage of content analysis is the cross analyses of the individual conceptual models identified in stage 1. The final table of factors and constructs was tabulated in Table 5.4 to facilitate comparison and interpretation of salient factors. In addition, Table 5.3 on the links between constructs was also scrutinized. The objective was to eliminate factors, constructs, and links which were weak and inconsistent.

Table 5.4: Summary of factors and constructs

Factors	Constructs	1	2	3	4	5	6	7	8	9	10
1. External Factors	Professional Bodies	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Accounting Firms	✓	✓	✓	✓				✓	✓	✓
	Media	✓	✓			✓	✓		✓	✓	✓
	Government	✓	✓			✓					
	Private Individual					✓			✓		
	Own Experience			✓	✓			✓			
2. Cognitive Factors	Awareness	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Perceived Benefit	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Perceived Risk	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Attitude	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. Normative Factor	Stakeholder Pressure	✓			✓	✓	✓	✓		✓	✓
4. Internal Control Factors	Organizational Ethical Climate	✓	✓	✓	✓	✓		✓	✓		✓
	Strength of Internal Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Financial Cost	✓	✓	✓		✓	✓	✓			✓
	Prior Experience							✓			
5. External Control Factor	Government Pressure	✓		✓	✓	✓	✓	✓	✓	✓	✓
6. Threat Perception Factors	Perceived Severity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Perceived Susceptibility	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7. Contextual Factors	Organizational Size	✓	✓		✓	✓	✓	✓		✓	✓
	Industry type	✓	✓	✓	✓	✓			✓	✓	✓
	Organizational Type	✓	✓	✓				✓		✓	

It is interesting to note that although the literature review identified only two external factors; professional bodies and accounting firms, the field study yielded four additional factors; media, government, private individual and own experience. Media was supported by 70% of the participants. Therefore, this factor is incorporated in the final research model. Three participants suggested government. Furthermore, recent government requirement for risk management also emphasized the need for forensic accounting services. Hence, government is included as an external factor in the conceptual model. Private individual had the weak support of two participants. Furthermore, very few private individuals conduct courses on their own. Most of them collaborate with professional bodies or universities to come up with forensic accounting services courses. Own experience is suggested by three participants. However, forensic accounting service is a relatively new field and very few companies have utilized forensic accounting services in Malaysia. In view of this, both private individual and own experience is omitted from the conceptual model.

The majority of the participants agreed upon the influence of cognitive factors. All the participants confirmed the awareness, perceived benefits, and attitude factors. Meanwhile, nine participants supported the perceived risks factor. In addition, stakeholder pressure was validated by 70% of the participants. However, the participants identified only two salient stakeholders. These are shareholder demand and board of directors' demand. The threat perceptions factors of perceived severity and perceived susceptibility of fraud received unanimous vote as participants considered this as an imperative determinant to employ forensic accounting services.

All the respondents verified that strength of internal control system is a crucial external control factor in the behavioral intention model. In addition, 80% of the participants agreed upon the inclusion of financial cost. They pointed out that cost has to be taken in consideration and services are not cheap. Organizational ethical climate was also corroborated by 80% of the participants as an internal control factor. Only one of the participant mentioned prior experience as an internal control factor. The reason for this is because this participant's company had used forensic accounting services beforehand to detect fraud. Due to this weak support, this factor would be excluded from the final research model. The analysis revealed that 80% of the participants viewed government pressure as a vital external control factor.

All the contextual factors identified in the literature namely organizational size, organizational type, and types of industry were confirmed by majority of the field study participants. Both organizational size and industry type were mentioned by 80% of the participants whilst organizational type was reasonably supported by 50% of the participants. In conclusion, all the constructs identified through literature had a strong 70% or more support by the field study participants except for organizational type which had 50% support. However, the field study participants contended public listed companies are accountable to shareholders. These companies will use forensic accounting services to avoid the risk of fraud. On the other hand, private limited companies are tightly controlled. They have decreased risks of fraud and thus they will not use forensic accounting services. Based on these arguments, organizational size, industry type and organizational type are incorporated as a contextual factors that moderate the relationships between intention to use forensic accounting services and its immediate antecedents.

The Table 5.3 shows that the majority of the participants validated the links established through the literature review. There was also reasonable support for the two new constructs link to awareness. Furthermore, the link between the three constructs excluded from the final research model that is private individual to awareness, own experience to awareness and prior experience to intention was very weak.

The focus of the qualitative phase was to confirm the factors and constructs identified in the literature and to uncover additional constructs that could further enhance the initial research model. The analysis validates all the factors and constructs identified in the literature review. The analysis also exposed two new constructs that will be incorporated into the initial research model. These constructs are government and media. However, private individual, own experience and prior experience were excluded due to weak support. The factors and constructs that were chosen after careful rationalization were consolidated into the final research model.

5.5 Final Research Model

The final research model is the amalgamation of the initial research model derived through literature review and the constructs and links obtained through detailed field study data analysis. The factors, constructs, and links identified through this corroboration is recapitulated in Table 5.5. In addition, the table provides the rationalization for the inclusion or rejection of each link. Therefore, the combinations of literature review and in depth qualitative data analysis lead to the development of the final research model. The integration of realistic worldview added valuable insights that not only validated the factors and constructs specific to the behavioral intention model but also enhanced the model through the addition of two new constructs. This integrative approach hopes to establish a conceptual model with an increased predictive power. Figure 5.14 represents the final research model for the behavioral intention to use forensic accounting services for the detection and prevention of fraud by large Malaysian companies.

Table 5.5: Justification of factors, constructs, and links for the final research model

Factors	Links between Constructs	Justification for acceptance/rejection of constructs	Acceptance/ Rejection
1. External Factors	**Professional Body → Awareness**	- supported by literature review - suggested by 9 field study participants	✓
	Accounting Firms → Awareness	- supported by literature review - suggested by 7 field study participants	✓
	Media → Awareness	- not supported by literature - suggested by 7 field study participants - newspapers, magazines, journals and financial dailies do print articles on forensic accounting services and highlight major fraud cases	✓
	Government → Awareness	- not supported by literature - suggested by 3 field study participants - regulatory authorities emphasize the requirement for risk management and also the need for forensic accounting services	✓
	Private Individual → Awareness	- not supported by literature - suggested by 2 field study participants - very few private individuals conduct courses on their own - most of them collaborate with professional bodies or universities	**X**
	Own Experience → Awareness	- not supported by literature - suggested by 3 field study participants - statistic indicate very few companies would have used forensic accounting services in Malaysia - very few CFO's have worked as internal auditors	**X**
2. Cognitive Factors	**Awareness → Perceived Benefit**	- supported by literature review - suggested by all the participants in the field study	✓
	Awareness → Perceived Risk	- supported by literature review - suggested by 9 participants in the field study	✓

Factors	Links between Constructs	Justification for acceptance/rejection of constructs	Acceptance/ Rejection
	Perceived Benefit → Attitude	- supported by literature review - suggested by all the participants in the field study	✓
	Perceived Risk → Attitude	- supported by literature review - suggested by 8 participants in the field study	✓
	Attitude → Intention	- supported by literature review - suggested by all the participants in the field study	✓
3. Normative Factor	**Stakeholder Pressure → Intention**	- supported by literature review - suggested by 7 participants in the field study	✓
4. Internal Control Factors	**Financial Cost → Intention**	- supported by literature review - suggested by 8 participants in the field study	✓
	Financial Cost → Perceived Risks	- supported by literature review - suggested by 4 participants in the field study	
	Organizational Ethical Climate → Intention	- supported by literature review - suggested by 8 participants in the field study	✓
	Strength of Internal Control → Intention	- supported by literature review - suggested by all the participants in the field study	✓
	Prior Experience → Intention	- not supported by literature - suggested by 1 field study participants - forensic accounting services is a new field and very few companies would have used forensic accounting services in Malaysia	**X**
5. External Control Factor	**Government Pressure → Intention**	- supported by literature review - suggested by 8 participants in the field study	✓
6. Threat Perception Factors	**Severity → Intention**	- supported by literature review - suggested by 9 participants in the field study	✓
	Susceptibility → Intention	- supported by literature review - suggested by all the participants in the field study	✓
7. Contextual Factors	**Organizational Size → Intention**	- supported by literature review - suggested by 8 participants in the field study	✓
	Industry type → Intention	- supported by literature review - suggested by 8 participants in the field study	✓
	Company Type → Intention	- supported by literature review - suggested by 5 participants in the field study	✓

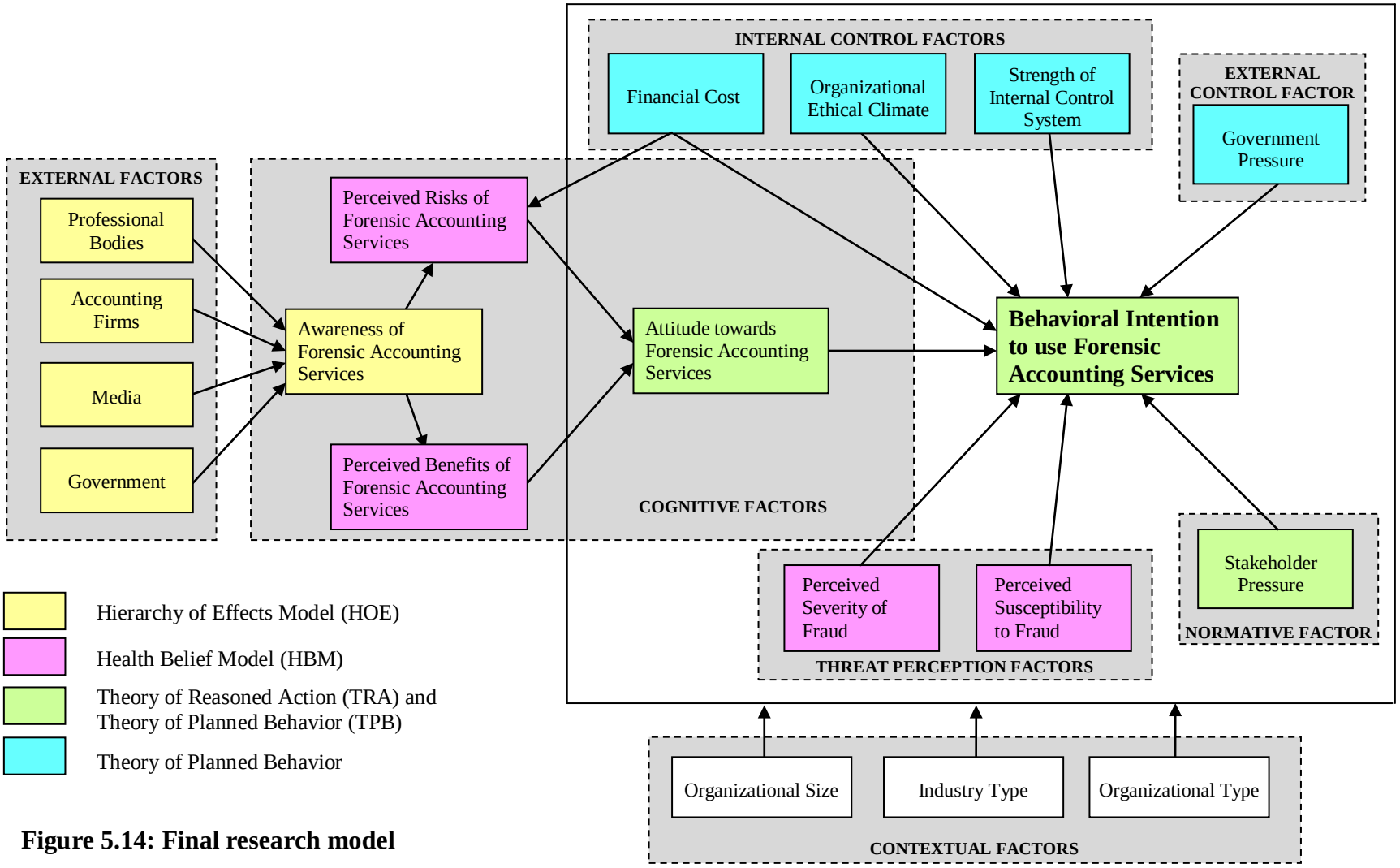

Figure 5.14: Final research model

This final research model will be utilized in the preparation of a survey instrument. This questionnaire will be used to collect quantitative data in the pilot study and the large-scale national survey. The quantitative phase of the study is to find statistical significance for the factors and constructs. The final outcome is a behavioral model with the best efficacy and utility to predict the intention to use forensic accounting services amongst large Malaysian companies. Therefore, the final conceptual model is the foundation for the quantitative phase of this study. The following section will provide further explanation and justification on the inclusion of each individual factors and constructs in the final research model.

5.5.1 External Factors

External factors that have been included in the final research model are professional bodies, accounting firms, media, and government. Since forensic accounting services is a relatively new field in Malaysia, external factors create the awareness of these services to large companies. The awareness of the benefits and risks of forensic accounting services will subsequently drive the intention to use forensic accounting services in the detection and prevention of fraud.

5.5.1.1 Professional Bodies

Literature review has identified the multifarious roles of professional bodies in creating awareness of forensic accounting services. Table 3.2 outlines some of the activities undertaken by selected professional bodies such as the AICPA, ACFE, MIA, and MICPA. The various seminars, courses, and conferences conducted, journals and magazines publications, newsletters, and pamphlets are all geared towards raising awareness on forensic accounting services. Past innovation adoption research contend that professional bodies' involvement significantly increased the adoption of an innovation by an organization (Swan and Newell 1995; Swan, Newell, and Robertson 2000; Wejnert 2002; Damanpour and Schneider 2006). Furthermore, past research by Weaver, Trevino, and Cochran (1999) confirmed that professional bodies have a significant positive influence on the ethics program of an organization.

The field study analysis revealed that seminars and courses conducted by professional bodies was the activity most referred by the participants. Six of the participants 1, 3, 4, 5, 6, and 10 shared the opinion that seminars and courses either directly or indirectly created awareness of forensic accounting services. The next most recognized activity is publishing articles in journals and magazines to raise awareness of forensic accounting services. Participants 1, 4, 5, 6, and 8 agreed upon this. Whilst participants 2 and 3 acknowledged that professional bodies distributed newsletters, participants 3 and 4 talked about professional bodies distributing flyers to raise awareness on forensic accounting services.

All the participants except participant 7 agreed upon the link between professional bodies and awareness. Therefore, the promotional activities by professional bodies have the intended effect of increasing the awareness of field study participants. The excerpt from the interview transcript below summarizes the views of the field study participants for this construct:

> "… either through journal or through seminar which is being conducted by professional bodies."

> "I did read a lot of leaflets from MIA and MACPA that such courses are being conducted."

5.5.1.2 Accounting Firms

The second external factor, accounting firms, has been established through the literature review. Research on the activities of the service providers in Chapter 3 details the numerous promotional strategies employed by them. Empirical evidence from innovation adoption studies (Hultink et al. 1997; Frambach et al. 1998; Lee and Larsen 2009) support the significant positive influence of service providers on the intention to adopt. Furthermore, Quaddus and Hofmeyer (2007) confirmed the significant influence of service providers as an external factor that creates awareness of B2B trading in small businesses.

Participants 1, 3, and 8 described that accounting firms distributed flyers whilst participant 2 said that the firms distributed newsletter with information on forensic accounting services. Participants 1, 2, and 3 shared the view that fraud survey reports published by accounting firms promote the different types of forensic accounting services. Two of the participants, 9 and 10 opinioned that external auditors from the accounting firms disseminate information on forensic accounting services to the companies. Participant 8 contends that accounting firms conduct seminars and courses that create awareness on forensic accounting services whilst participant 4 stated that accounting firms advertise these courses and seminars in the media.

Seven of the field study participants recognized the influential role of accounting firms in creating awareness of forensic accounting services. The participants 1, 2, 3, 4, 8, 9, and 10 confirmed marketing strategies of accounting firms were successful in influencing the awareness of forensic accounting services. The selected response below from the interview participants sums up the support for this construct:

> "Particularly in the course of audit, they tend to highlight forensic accounting services to us you know, during the finalization audit we at the higher management do meet up with partners and senior managers in charge to discuss what are the weaknesses in the company's internal control system. Through the discussion or letters to us, they tend to advice us to take certain measures. So, in that sense they have contributed in creating awareness and also the need to have forensic accounting.

> "From flyers, we receive in the mail on courses on forensic accounting and our people come across it who wants to attend these courses."

> "…. also publications of results of survey on fraud that have been conducted by big major accounting firms."

> "The accounting firms also through their newsletter do promote and share information on forensic accounting services."

5.5.1.3 Media

Interestingly the field study analysis revealed two new external factor constructs. The first construct is media and participants 1, 2, 5, 6, 8, 9, and 10 agree upon it as a contributor of forensic accounting services awareness. The corresponding items identified for this construct were articles published in magazines, journals, newspapers, and financial dailies. Newspaper was the most quoted media and participants 2, 6, 9, and 10 read the articles on forensic accounting services. Participants 1, 6, and 8 commented on the articles published in magazines and journals on forensic accounting services. In addition, participant 2 stated that he had seen articles on forensic accounting services in financial dailies.

An innovation adoption study by Hofmeyer (2005) did not acknowledge media as significantly influencing awareness. However, the influence of media in creating awareness was confirmed by participants 1, 2, 5, 6, 8, 9, and 10. This strongly supported link between media and awareness establishes the significant role of media. Therefore, media is included as an external control factor. The response below is indicative of the interview participants' shared view for this construct:

> "…..reading the newspaper and the financial dailies about the kind of fraud that has taken place, which creates the awareness."

5.5.1.4 Government

Another new external factor construct identified by the field study participants is government as a contributor towards awareness of forensic accounting services. Participants 1 and 5 believed government requirement on risk management created their awareness of forensic accounting services. Participant 2 focused on regulatory authorities making emphasis on forensic accounting services. Although the literature review uncovered a research that studied the influence of government on awareness (Hofmeyer 2005) the results were not significant. Therefore, government was not included in the initial research model. However, after reviewing the support for government by the field study participants, this study has decided to include this construct in the final research model. In addition, participant 1, 2 and 4, support the

link between government and awareness. This selection from the transcript passage reiterates the interview participants' general agreement on this construct:

> "Over the year of being public listed company, the Kuala Lumpur Stock Exchange has also introduced risk management, corporate governance rules, and all that. On a more holistic scale this helps in bringing the awareness of forensic accounting."

> "… we have got the regulatory authorities making emphasis on those areas, so those are the kind of thing that would have created awareness for management."

5.5.2 Cognitive Factors

5.5.2.1 Awareness of Forensic Accounting Services

The HOE model asserts that awareness is a crucial prerequisite to the formation of liking, preference, conviction and subsequently the purchase of a product (Lavidge and Steiner 1961). The significant influence of awareness on perceived benefits was reported by Hofmeyer (2005). In addition, Mitra, Reiss, and Capella (1999) in their study confirmed the influence of knowledge on the perceived risks of purchasing credence services such as forensic accounting services.

Data gathered from the qualitative study revealed that the participants' were aware of both the benefits and risks of acquiring forensic accounting services. All the participants shared the view, "familiar with the benefits of using forensic accounting services". Nine of the participants supported the perceived awareness of risks involved in using forensic accounting services. Only participant 7 did not agree with this and this is because he had used forensic accounting services before and was satisfied with the results. He did not encounter any negative outcome from engaging these services, thus, he was not aware of risks. All the participants had a general agreement that there is a link between awareness and perceived benefits. Furthermore, all the participants except participant 7 believed that awareness would influence the perceived risks of acquiring forensic accounting services.

5.5.2.2 Perceived Benefits of Forensic Accounting Services

Fraud experts have expounded the perceived benefits of forensic accounting services in fraud detection and prevention. The foremost benefit is that employing forensic accounting services will be perceived as a serious policy of warning to everyone in the company not to commit fraud (Peterson and Zikmund 2004; Wells 2004; Kranacher 2006). Secondly, Ramaswamy (2005), Christensen, Byington, and Blalock (2005), and Lister (2007) opinioned that forensic accounting services is essential in monitoring and maintaining the effectiveness of the organization's internal control system. In addition, accounting firms believe that forensic accountants have the expertise and investigative skills to recover lost assets (Zhang 2005; PricewaterhouseCoopers 2006a). Moreover, the image of the firms that utilize forensic accounting services will be enhanced through the eyes of the stakeholders (Fombrum and Shanley 1990; Schnatterly 2003).

Also, forensic accountants are comparatively more impartial and reliable than internal auditors in fraud detection and prevention (Chew 2001). This is especially true when controls are subject to management override and collusive manipulations (Singleton et al. 2006; Pearson and Singleton 2008). Furthermore, the in-depth fraud and accounting expertise of forensic accountants would greatly complement existing internal or external auditors (Harris and Brown 2000; Chew 2001; Boritz, Kotchetova, and Robinson 2008). Forensic accountants also can gather and present evidence in a specialized and concise approach (AICPA Forensic and Litigation Services Committee 2006; Chary and Kiranmai 2006). Finally, in the incidence of a major fraud, forensic accounting services provide valuable work force resources to conduct exhaustive investigations (Chew 2001).

Empirical studies on organizational ethical decision-making and innovation adoption have confirmed that perceived benefits has a significant impact on attitude (Featherman and Pavlou 2003; Hofmeyer 2005; Lu, C. Hsu, and H. Hsu 2005; Stevens et al. 2005). In addition, empirical studies conducted on protective behavior intention have also indicated that perceived benefits is an important antecedent of intention and behavior (Vanlandingham et al. 1995; Wulfert and Wan 1995; Savage and Clarke 2001; Roden 2004; Ham 2005; McClenahan et al. 2007).

All of the field study participants except participant 9 shared the view that forensic accounting services helps in tightening the internal control system of the company. Furthermore, all the participants except participant 2 agreed that forensic accounting services could deter fraud from occurring. Participants 2, 3, 4, 5, 6, 7, 9, and 10 recognized forensic accounting services' role in the recovery of cash and assets lost through fraud. According to participant 1, 3, 5, 6, 8, 9, and 10 the use of forensic accounting services would enhance the image of the firm. Participants 6, 7, and 9 perceived in the gathering of fraud evidence, forensic accounting services is beneficial. Altogether, the field study participants mentioned five perceived benefits of forensic accounting services usage in fraud detection and prevention. All the perceived benefits extracted from the field study analysis are parallel with the perceived benefits derived through literature review. Furthermore, there was a general agreement by all the field study participants that perceived benefit is influential in forming their attitude. The interview responses below provide examples of the general agreement for this construct:

> '… benefits are there in terms of remedifying weaknesses in the internal control process more to deterrence of fraud. Basically, to minimize the risk of fraud."

> "Certainly it has to enhance the image of the company both in term of investor as well as supplier and people with who we do business with."

> "… their role is purely to look at the fact, summarize the facts and identify what happened and then present to the management."

> "… understanding, how the fraud was committed and therefore putting the necessary control in place."

> "… in environment of high probability of fraud the intangible benefit is act of deterrence to anybody who think they can perpetuate fraud. That is one. Two, it will help the company to improve the internal control system from the expertise of forensic accounting services providers and then the necessary remedial action could be taken."

"It adds value to a firm that you have such thing forensic accounting services in place. It adds value to the firm from the external perspective as well. It creates a better image of the company that the company is well run and they know what they are doing."

"Benefit would be you got an independent party who is most knowledgeable, more skillful and these are specialized skills that people wouldn't have acquired in normal course of their work."

"I think the benefit of policy of warning is very critical to me. It is a very important part and very effective."

5.5.2.3 Perceived Risks of Forensic Accounting Services

The perceived risks identified through literature review are financial risk, social risk and performance risk. The financial risk of acquiring forensic accounting services is perceptible because the bills for forensic accounting services are very high (Gray 2002; Christensen, Byington, and Blalock 2005). The performance risk is apparent because as a credence service, it is inherently difficult to obtain pre-purchase information and knowledge on forensic accounting services (Hill 1988; Mitra, Reiss, and Capella 1999). Social risks ensues when stakeholders view the use of forensic accounting services as a sign that the company is having a serious problem and is incapable of internally solving the problem. A study by Mitra, Reiss, and Capella (1999) confirmed that credence based services have the highest financial, social and performance risks. Studies on ethical decision-making, innovation adoption and health belief model have also confirmed the significant negative influence of perceived risks on intention (Wulfert and Wan 1995; Vanlandingham et al. 1995; Savage and Clarke 2001; Tan 2002; Heijden, Verhagen and Creemers 2003; Lajunen and Rasanen 2004; Roden 2004; Ham 2005; Lu, C. Hsu, and H. Hsu 2005; Wang 2005; Gewald, Wullenweber, and Weitzel 2006; Gooding et al. 2006; Matos, Ituassu, and Rossi 2007; McClenahan et al. 2007).

Participants 1, 2, 4, 5, 6, 8, and 9 from the field study contended that the use of forensic accounting services poses social risk that would damage the company's reputation. In addition, participant 1, 2, 4, 5, and 10 expressed concern about the financial risks due to the high cost of forensic accounting services. Four of the participants 2, 3, 5, and 10 opinioned that acquiring forensic accounting services brought about performance risks because the quality of the service cannot be judged confidently prior to purchase. The field study analysis also indicated two other types of risks that were not extracted from literature review.

The first is, "leakage of sensitive information" suggested by participants 1, 3, and 6. The CFO's expressed concern that the detailed investigative technique employed by forensic accounting services would leak some of the sensitive information that the company does not want to disclose. Second is, "restrict or curtail decision-making" which was inferred by participants 3, 5, 8, and 9. They believed forensic accounting services would tighten existing rules and procedures especially in the internal control system of the company. Therefore, employees must first consider and adhere to the many red tapes of the risk management strategies put in place by forensic accounting services. They are worried that this might impede the employees from making any bold decisions. All the participants except participant 7 and 8 established the link between perceived risks and attitude. The excerpt from the transcript below recaps the shared view amongst the interview participants for this construct:

> "… one of the risks would be the leakage of sensitive information to the public. And of course because of the risk of damage to the reputation of the company whereby it will also affect the public's confidence in the company in terms of the valuation of the company's shares. Because of this type of fraud, the shares I mean could just dive down. And also, in terms of confidence there would also may be a confidence crisis within the organization in terms of staff resignation. Another risk could be further financial expenditure on the service when the assurance of the recovery of loss is uncertain or minimal."

> "… might curtail their future decision-making because decision-making carries with it a lot of risks. However, we expect managers and leaders to take a certain element of risk."

"When you have nothing wrong then if you use forensic accounting services you create the wrong perception about your company. That could be more damaging than being a benefit."

"The risk that you can have by allowing people to access your records is that the information could leak to members of the public through the forensic accounting services provider, before the company has the opportunity to make a general announcement to the public at large. Then, it would damage the credibility of the board and management. And like wise, if the information that was privileged to the forensic accountants is made known to the competitors, it can affect the way you conduct your business because they may be able to understand your pricing strategies and cost control strategies. So, that is risk."

"We cannot put in too much of controls and be frightened of our own shadow that business cannot move."

"When, you don't see it forensic accounting services as a benefit then of course you would be talking about the exorbitant cost of it. This service is not cheap."

5.5.2.4 Attitude towards Forensic Accounting Services

Attitude is a function of an individual's belief that a certain behaviour would lead to specific outcomes (Azjen and Fishbein 1980). If the belief is the outcome of the action will be positive, then the person is deemed to have a positive attitude. The formation of a positive attitude is a prerequisite towards the development of both intention and behavior. This significant attitude-intention link has been proven in numerous ethical decision-making studies (Randall and Gibson 1991; Kurland 1996; Flannery and May 2000; Buchan 2005; Carpenter and Reimers 2005) and protective behavior intention studies (Michels et al. 1995; Vanlandingham et al. 1995; Wulfert and Wan 1995; Quine, Rutter and Arnold 1998; Poss 2001; Lajunen and Rasanen 2004; Wang 2005).

Participants 2, 3, 5, 6, 7, 8, and 9 stated that they had a positive feeling of forensic accounting services based on the benefits. In addition, participants 2, 3, 4, and 7 believed it is good to have this service. Moreover, participants 1, 3, 6, and 10 acknowledged that forensic accounting service has a role to play in their company. However, participants 1, 2, 4, 5, and 6 expressed concern that it is risky to have this service based on perceived risks. Furthermore, participants 1, 5, 9, and 10 commented that they have negative feelings based on risks. It is noted that participants 3, 7, and 8 had shared only positive views of forensic accounting services of whilst the rest of the participants had both positive and negative opinions. Nevertheless, all the field study participants agreed upon the link between attitude and intention. The implication is that attitude in an important indicator that would trigger the intention to use forensic accounting services.

> "I think I am quite open, quite positive, based on the benefits. I think they have a role to play."

> "Yes, definitely. Anything we invest in, we expect the benefit all the way. So in our assessment if the benefits are much less than the cost, both the tangible, intangible, financial, psychological, emotional and the cost that have been evaluated is more, then, we are not going to avail our self from this service. If the benefit outweighs like fraud has taken place then it is beneficial to bring them in. I will bring them in. But on mere suspicion, I think the cost is too high, too risky."

> "I will weigh the cost and benefit before making any decision. If it is more beneficial, I will use these services. If it brings more risks to my organization then what is the point I am using this service."

> "I think it is good to have this service. The question really arises is whether the company needs it. Goes back to the benefits and costs again. When you do not know enough, you also get the comfortable feeling that you don't need it. It is a chicken and egg situation in some way."

5.5.3 Normative Factor

5.5.3.1 Stakeholder Pressure

According to the theory the theory of stakeholders management (Hill and Jones 1992) the opinions of stakeholders to a large extent influence organizational decision-making. The identified salient stakeholders for large companies in the utilization of forensic accounting services are shareholders, banks/lenders, customers, board of directors and suppliers. Numerous studies on ethical decision-making have established the significant influence of subjective norm (Gibson and Frakes 1997; Cordano and Frieze 2000; Carpenter and Reimers 2005; Gillet and Uddin 2005). Even studies done on protective behavior intention revealed that subjective norm is a significant predictor of either intention or behavior (Vanlandingham et al. 1995; Wulfert and Wan 1995; Cordano and Frieze 2000; Poss 2001; Savage and Clarke 2001; Lajunen and Rasanen 2004; Ham 2005).

Although the literature review extracted five salient stakeholders for this behavioral intention, the field study participants only discussed two stakeholders. Participant 1, 4, 5, 6, 7, 9, and 10 perceived that shareholders demand are the driving force that might influence them to use forensic accounting services. The other shareholder mentioned by participant 1, 5, and 6 is the company's board of directors. The CFOs opinioned that board of directors had the power to pressure the company to use forensic accounting services. Furthermore, seven of the participants shared the view that stakeholder pressure would influence their intention to use forensic accounting services. The excerpt from the transcript below recaps the shared view amongst the interview participants for this construct:

> "Basically it is the board of directors and present shareholders because they are not in the day to day management but they are responsible to the day to day management. They might be the biggest force of pressure."

5.5.4 Internal Control Factors

5.5.4.1 Financial Cost

Forensic accounting services is an expensive service and the bill may skyrocket to hundreds of thousands of dollars (Gray 2002; Grippo and Ibex 2003; Apostolou and Crumbley 2008). The influence of financial cost on the intention to use forensic accounting services has been reported by Bierstaker, Brody, and Pacini (2006) and Ibrahim and Abdullah (2007). Flannery and May (2000) have confirmed the significant relationship between financial cost and ethical decision-making. Innovation adoption studies have also verified the significance influence of financial cost on the intention to adopt (Luarn and Lin 2005; Wu and Wang 2005; Wymer and Regan 2005; Tung, Chang, and Chou 2008; Lee and Larsen 2009; Wei et al. 2009; Tung et al. 2009).

According to Sweeney, Soutar, Johnson (1999) the higher the financial cost, the degree of financial risks also becomes greater. Moreover, Chen and Dubinsky (2003) concured that the higher the cost, the higher is the loss incurred if the product does not live up to expectations. The results of their study confirmed that perceived price has a significant positive influence on perceived risks.

Participants 1, 2, 3, 5, 6, and 7 alleged that forensic accounting services are not cheap whilst participants 1, 2, 4, 5, 6, 7, and 10 pointed out that they have to take cost into consideration. All the participants except participant 8 and 9 support the link between financial cost and intention. Furthermore, participant 2, 5, 6, and 10 also confirmed the link between financial cost and perceived risks. These excerpts from the interview transcript summarize the views of the field study participants for this construct:

> "…. cost is still cost. That's why, not knowing the difference between internal audit and forensic accounting, you tend to go for internal audit because it is cheaper. I would think it is cheaper because forensic accounting involves dealing all this software and what not. I think it will be more expensive, I mean logically."

"… of course these services are not cheap. So financially, I mean the companies also have to take that into consideration."

"Well, forensic accounting services are expensive, then people are going to say 'oh god, we spent so much money, what are the benefits are we going to get out of it?'"

5.5.4.2 Organizational Ethical Climate

PricewaterhouseCoopers (2007b) contended that the 'tone at the top' determines the organizational ethical environment. Top management's ethical conduct trickles down and is ultimately emulated by every member of the organization (PricewaterhouseCoopers 2007b). The literature review has validated that ethical deliberations are the underpinnings of fraud prevention and detection strategies (Krummeck 2000; Koestenbaum, Keys, and Weirich 2005; Castelleno and Lightle 2005; Grace Jr. and Haupert 2006; Kranacher 2006; Hernandez and Groot 2007). In addition, KPMG's (2008) 'Integrity Survey' report concluded that building a high-integrity organization is crucial and imperative towards preventing and detecting fraud. Therefore, organizations with a strong ethical climate will be serious in preventing and detecting fraud through imperative measures such as forensic accounting services. Furthermore, past researches have established the significant influence of ethical climate on both ethical intention and behavior (Bartels et al. 1998; Trevino, Butterfield, and McCabe 1998; Flannery and May 2000; Shafer 2008).

Participants 3, 4, 5, 7, 8, and 10 responded that they expect everyone in the organization to act ethically and with integrity. In addition, participants 4, 7, and 8 gave a stern warning that any fraud would not be tolerated. Participants 1, 5, and 10 stressed the importance of adhering to the organization's code of ethics. Participants 2 and 3 acknowledged the need for high standard for governance. Participant 1 emphasized that there was no room for personal interest in the organization. In addition, all the participants except participants 6 and 9 confirmed the relationship between organizational ethical climate and intention. The response below is indicative of the shared view of the interview participants for this construct:

"If the decision makers in the company have no ethical standards then of course they will avoid having forensic accounting services.

"As I have stated earlier, it is a top down sort of thing where the top management is very serious and expects every employee to adhere to the code of ethics and also no room for personal interest. Because of all the requirements and their responsibilities, they would use forensic accounting services."

"Of course, the culture itself is very important. It is the tone that is being set and walks the talk. But, if the top management doesn't walk the talk and just talks, down along the road, who cares?"

5.5.4.3 Strength of Internal Control System

A comprehensive, well executed and consistently monitored internal control system is vital in the prevention and detection of fraud losses (Carpenter and Mahoney 2001). However, the motivation for forensic accounting services aroused due to the failure of internal and external audit in ensuring that the internal control system had the efficacy and accountability stipulated by organizations operating in current vigorous governance settings (Chary and Kiranmai 2006). Furthermore, forensic accountants have in-depth knowledge of effective fraud prevention methods and could facilitate the development of an effective internal control system (Ramaswamy 2005). Hence, organizations will utilize forensic accounting services if they perceive their internal control system is weak. According to the literature review, there are five major components of an effective internal control system; control environment, risk assessment, information and communication, control activities, and monitoring (COSO 1992).

The field study participants talked about the same major components. They also described some of the major elements of each component. Although the control environment that sets the 'tone at the top' was deemed by COSO (1992) as the most integral component of the internal control system, only four participants mentioned this. Participant 4 directly emphasized control environment as the most important

internal control system component. Participant 3 and 10 spoke about organizational structure as an essential element of control environment. In addition, participant 3 drew attention to the importance of a competent and independent board of directors.

The component that was the most discussed about was control activities. All the participants opinioned that the internal control system has to ensure that procedures and policies are adhered to at all times. Participants 3, 5, 6, and 8 spoke about the importance of level of authorities whilst participant 1, 3, 9, and 10 emphasized the importance of segregation of duties. Risk assessment was recognized by all the participants except participant 3 as a major contributing factor in the implementation of an effective internal control system. Participant 2, 4, 6, 8, and participant 2, 4, 5, 6, 7, 8 respectively, supported the next two components of internal control system communication and monitoring. In addition, the link between internal control system and the intention to use forensic accounting services in field study was established because all the participants supported this crucial relationship. The selections below from the transcript passages reiterate the interview participants' general agreement on this construct:

> "If internal control not efficient, you need forensic accounting services. Forensic accounting services should come in to complement."

> "Components in the internal control, I think one of the key areas is that we must ensure that firstly there are adequate segregation of duties. Okay, that is one. Secondly is that certain level of authorities like financial authorities, are spelt out and documented. There must be proper organization structure in place. When I say proper set of organization structure must be in place, that means you must have independence like in audit committee, internal audit in place. Fourthly, of course, you must ensure that you get directors who are competent and independent. Make sure the policies, SOPs are in place."

> "For me it is more on assessing the risk and reviewing the accounts regularly. Make sure proper procedures are established, segregation of duties and signing limit are spelled out clearly. We need to monitor how the purchases of investment are done and who is given the authority to do it. All these

things need to be monitored and communicated to the employees about their responsibility and their level of authority. Another important thing is, the attitude of the top management where they should not override the controls in place. You know, most of the corporate scandals that are taking place are due to certain top management including board of directors over riding certain controls for their personal gain. So it shows that integrity of management is also an important area that determines your internal control strength."

5.5.5 External Control Factor

5.5.5.1 Government Pressure

The post Enron major governance and ethics reforms outlined in the Sarbanes-Oxley Act has the overarching aim of both shielding public interest and reinstating investor confidence in U.S. (Badawi 2005). A variety of laws and regulations have also emerged worldwide, providing organizations with an array of criteria to incorporate into their anti-fraud efforts. These government regulations require organizations to be more vigilant in the detection and prevention of fraud and material misstatement. In addition, Kuan and Chau (2001) in their innovation adoption study confirmed the hypotheses that adopter firms perceived higher levels of government pressure than non-adopter firms did. Therefore, the researchers concluded that legal pressure could increase the push towards innovation adoption.

Participants 2, 3, 4, 7, 9, and 10 agreed that Security Commission guidelines indirectly forces organizations to use forensic accounting services. Furthermore, participant 7 expressed concerns on the numerous penalty set for non-compliance. Participants 1, 5, 6, and 8 pointed out that government insists on companies to use forensic accounting services when fraud occurs. All the participants except participant 2 and 8 supported the link between government pressure and their organizations' intention to use forensic accounting services in fraud detection and prevention.

"I think the so-called government pressure has always been there. I don't think any government wants to publicly say that they are putting less emphasis. If

you see what happened in the world, you know a lot of this has emanated from the West like for example you look at Cadbury code. So, a lot of countries have adopted the principal from the Cadbury code and also the OECD. That also has been given a lot of important prominence. So, I think this kind of development have caused our government also to adopt similar practices. Like in Malaysia, for example, the Malaysian Code of Corporate Governance has been largely drawn from these worldwide developments."

"All stated in the code of governance as well as SC guidelines. These are all law whereby then you have to follow. As long as you are a listed company, these are the rules you have to play by and these are the things that you have to do. Then, that indirectly forces you to use forensic accounting services."

"For example, you look at the annual report of listed company, the directors are supposed to give a statement on internal control to say that actually the internal control of the company is fine. It is like giving a medical report to say that I am healthy."

"I mean you have to play by the rules. If not, then you don't go and get listed. In fact, because in U.S., Enron, and some cases that has happened recently, the authorities even have tightened the rules and the company acts to make the auditors liable as well."

5.5.6 Threat Perception Factors

5.5.6.1 Perceived Severity of Fraud

The literature review identified three major costs of fraud namely direct financial loss, management cost and collateral cost (PricewaterhouseCoopers 2007a). Direct financial loss includes loss of cash and assets due to fraud. Management costs comprises of distracted management time, litigation costs, managing public and investor relations, and complying with renewed regulatory oversight and demands (PricewaterhosuseCooper 2007b). Collateral damage takes into account reputation damage, damage to staff morale, loss in productivity, drop in share values,

shareholders suit, civil fines, and even bankruptcy (M. S. Baucus and D. A. Baucus 1997; Beasley, Carcello, and Hermanson 2001; Peterson and Zikmund 2004; PricewaterhosuseCooper 2007a and 2007b; Zahra, Priem and Rasheed 2007).

Empirical studies using HBM have shown that perceived severity is an important construct that will significantly affect the decision to use protective measures (Vanlandingham et al. 1995; Lajunen and Rasanen 2004; Roden 2004). The higher the perceived severity of not pursuing a protective action, the greater is the likelihood that the action will be pursued to avoid the severe negative consequences (Janz and Becker 1984). Acquiring forensic accounting services to detect and prevent fraud is one of the proactive measures that can be used by an organization to allay the fear of the severe consequences of fraud. Therefore, an organization would engage forensic accounting services to avoid fraud if it believes the consequences of fraud are severe.

The field study participants acknowledged six types of fraud costs. All the participants except participant 6 confirmed that the monetary loss due to fraud would severely affect the organization. Participant 2, 4, 6, and 8 mentioned the high costs of fraud investigation. Eight of the participants, 1, 3, 4, 5, 6, 8, 9, and 10 expressed concern that fraud would damage their company's image. Participants 1, 2, 3, 5, and 7 shared the view that the occurrence of fraud in the company would cause low employee morale and this would impair the efficiency and productivity of the company. The final cost of fraud mentioned is the loss of customers. This is of concern to participant 1, 3, 8, 9, and 10.

All the participants except participant 6 disclosed that perceived severity of fraud would influence their intention to use forensic accounting services. The excerpt from the transcript below recaps the shared view amongst the interview participants for this construct:

> "If fraud is to happen in my organization, first thing, it will affect our image. We are supposed to hold public's money and if public got to know that fraud is prevalent, they will lose confidence and start withdrawing the money as what happened to some banks in Malaysia. We will lose our revenue and not be able to give good perks and bonuses to our staff. Indirectly they will lose the

enthusiasm to work and lose confidence on the management. The whole progress of the company will be affected.

"The main effect would be finding out what went wrong and this will incur cost of investigating the fraud. Worse, if the news is out, the company's image would be affected, share prices would go down and public trust need to be won over again."

"When you think of fraud it is definitely relating to monetary loss to the company and damage to the reputation of the company. These two things can bring a lot of impact to the organization. As I mentioned earlier this can lead to confidence crisis within the management where it can lead to a lot of resignation among the staff due to low morale. If it is not checked, it will disturb the operation of the organization in terms of efficiency. On reputation, once the company has a bad image; people tend to stay away from this company and don't want to do business with the company."

5.5.6.2 Perceived Susceptibility to Fraud

Only if there is a perceived susceptibility to fraud, organizations will take commensurate measures to proactively manage the risks of fraud. However, the literature indicated that there appears to be an 'illusion of safety' among Malaysian companies on their susceptibility to fraud. (KPMG 2005). Stefanek , Hartmann, and Nelson (2001) through their study found that the higher the susceptibility estimate and the higher the level of related worry, the higher is the intention to take a proactive measure to assuage the susceptibility to the risk. Dijk et al. (2003) also found that perceived susceptibility would significantly influence the behavioral intention to reduce the adverse condition. Studies using the HBM model have also yielded the same results (Vanlandingham et al. 1995; Poss 2001; Roden 2004; Ham 2005). Michels et al. (1995) in their conceptual model integrated perceived susceptibility in an extended TPB framework. The results of their study concluded that perceived susceptibility was one of the strongest predictors of intention.

Although all the field study participants said they would take up forensic accounting services in fraud detection and prevention if they were susceptible to fraud; only participants 7, 8, and 9 were worried that they were susceptible. 70% or the rest of the participants did not believe that their company would be victims of fraud. This finding reiterates the literature's claim of the 'illusion of safety' felt by the majority of companies compared to the prevalence of fraud. The selected interview participants' responses below, provides an example that recapitulate the support for this construct:

> "You see, we were so comfortable, we thought we were fine but fraud occurred. There is no such thing as zero fraud, there will always be people who want to take the opportunity and make you the victim."

> "We do worry, we cannot claim our internal control system is full proof, there is always risks. You have to be alert all the time and mitigate any potential failure in the system."

> "No, we have a highly reliable control system. If we encounter any control gap, we quickly administer procedures to mitigate the risks. The probability of fraud happening in my company is slim."

> "Not at all, we have emphasized on internal control for the last 20 years. We have established a system that we think is foolproof. The worry is not there."

5.5.7 Contextual Factors

5.5.7.1 Organizational Size

Past research on organizational fraud contend that organizational size is an influential construct (Staw and Swajkoski 1975; Gricar 1983; Dalton and Kesner 1988; Kesner, Victor, and Lamont 1988; Baucus 1989; Baucus and Near 1991; Saksena 2001). Although the findings indicate that organizational fraud differs significantly based on organizational size, the direction of influence varies. Holtfreter (2005) argued that the typical image of large profit-making organizations as the victims of fraud is not

always supported (Holtfreter 2005). Innovation adoption studies have consistently established organizational size to influence the intention to adopt an innovation (Bajwa et al. 2005). Although the majority of the studies supported the positive influence of size, there have also been mixed results (Frambach and Schillewaert 2002). O'Fallon and Butterfield (2005) concluded that future research on the influence of organizational size on ethical decision-making is necessary due to the mixed positive/negative influence. Harrison, Mykytyn, and Riemenschnieder (1997) included organizational size in their theoretical framework as a moderating factor. Results indicated that firm size significantly moderated the relationships between all three TPB constructs of attitude, subjective norms, and perceived behavioral control to intention.

Participants 1, 2, 4, 5, 6, 7, 9, and10 stated that turnover of an organization is an indicator of company size. However, participants 6 and 10 also believed that the number of employees determine the size of an organization. More importantly, all the participants except participant 3 and 8 discuss the influence of organizational size on intention. The selected interview participant response below provides an example that recapitulates the support for this construct:

> "Size does affect the intention to use forensic accounting services because basically if it is too big there is tendency you may lose control over the various divisions."

> "I tell you what, some of the big trading companies they are small outfit but high volume, it is the volume of transactions that will actually affect the determination whether we use the forensic services or not."

5.5.7.2 Industry Type

Numerous fraud studies have included industry type in their theoretical framework and confirmed this construct's significant influence (Baucus and Near 1991; Beasley et al. 2000; Holtfreter 2005; Barnes and Webb 2007). For example, Barnes and Webb (2007) verified that the organizations' susceptibility to occupational fraud

varies across industry type. In addition, O'Fallon and Butterfield (2000) in their meta-analysis of ethical decision-making studies reported that eight out of nine studies found significant differences across industries.

Participants 1, 2, 4, 9, and 10 confirmed that different types of industry have different levels of fraud. Participants 1, 3, and 5, pointed out that complexity of the organizational business structure varies across industries. Participants 3 and 8 expressed the view that it depends whether the organization is regulated or not. All the participants except participants 6 and 7 support the link between industry type and intention. The responses below are indicative of the shared view of the interview participants for this construct:

> "Different businesses have different kind of turnover and also cash transactions. As I said earlier from the different type of business we are involved in, bus transport has the potential of leakages due to high volume transactions."

> "Bank of course it involves public money and you are sharing it. So, you have to be transparent and make sure systems are in place. Accountability and transparency."

5.5.7.3 Organizational Type

Significantly higher number of occupational fraud is committed in public listed companies and private companies compared to public sector organizations (Barnes and Webb 2007). In addition, there were significant differences between the type of fraud committed in publicly traded and privately held organizations (Holtfreter 2005). Since fraud occurrences and types are influenced by organizational type, this construct may also influence organizational intention to use fraud mitigation measures.

Participants 1, 2, 3, 7, and 9 agreed that listed companies are accountable to stakeholders and would have more inclination to use forensic accounting services.

On the other hand, participant 1 and 2 supported the notion that private companies are tightly controlled with fewer risks and might not want to adopt forensic accounting services. The influence of company type on intention is agreed upon by participants 1, 2, 3, 7, and 9. The selected responses below from the interview participants sum up the support for the construct:

> "If it is a listed company, normally there is more pressure to use because it needs to be transparent and because of the law and regulations. For the private limited company, I would say it depends on the shareholders itself. More likely and not they would turn a blind eye and they won't pursue further once given the financial report. Because in listed company you are, especially the directors, you have to report and be accountable to the shareholders and to the authority. So, you try your best, to discharge your duty as best as possible."

> "Now you see what I said earlier is that those publicly controlled and those government controlled listed company the management itself, they are actually just running it for the benefit of public and the government. So, of course it is their duty to make sure the companies are properly run and then of course there would be budget for these forensic accounting services. Whereas, in family controlled company by virtue of facts that they are already quite tightly run and they have their own internal control, they would most likely want to save money on this service. Actually, it depends on public listed or not."
>
> "So, it depends on as I said, who owns what you are holding. If you are holding it, and it belongs to yourself, nobody bothers. You throw it down the river or burn it also nobody cares."

5.6 Summary

This chapter dealt with the qualitative phase of the mixed method research. The operationalization of the field study involved the rationalization of the chosen method, sample selection, data collection, and data analysis. The field study interviewed ten CFO's from large Malaysian companies. The data collected from the semi-structured interviews were transcribed and then analyzed. The two stage content analysis method prescribed by Miles and Huberman (1994) was utilized. This structured analysis process identified 7 factors, 21 constructs, and 76 measures. The goal was then to choose the most salient factors and constructs from the field study analysis and combine this with the initial research model.

The outcome was a fine-tuned final research model which represented a comprehensive set of factors and constructs that might influence the behavioral intention to use forensic accounting services for fraud detection and prevention by large Malaysian companies. The conceptual model has to be tested empirically by the subsequent quantitative phase of the mixed method research. Therefore, the next chapter will outline the development of the hypotheses and instrument for the national survey.

CHAPTER 6

HYPOTHESES AND QUESTIONNAIRE DEVELOPMENT

6.1 Introduction

The previous chapter detailed the formation of the final research model. This integrative model derived through literature review and qualitative data analysis provides the groundwork for the following phase of the study. The focus of this chapter is the development of the hypotheses based on the conceptual model. A survey instrument was then developed to facilitate the testing of these hypotheses. The approach utilized for the development of this questionnaire is detailed.

6.2 Hypotheses Development

6.2.1 Hypotheses Relating to External Factors

Forensic accounting service is an emerging field and organizations need to understand the role of this service in fraud detection and prevention through external factors. Only when organizations are aware of forensic accounting services they will realize the benefits and risks of utilizing them and this in turn will drive the intention to use these services. Two external factors, professional bodies and accounting firms were identified through literature review and field study. Meanwhile, the field study analysis also contributed two new external factors media and government.

6.2.1.1 Professional Bodies

Wejnert (2002) in her review of diffusion innovation models argued that professional associations provide imperative information on the latest industrial development to increase awareness of an innovation and this leads towards increased adoption. In addition, Swan and Newell (1994) argued that professional associations perceived their primary role is to disseminate information on relevant innovations. The literature review revealed professional bodies in Malaysia such as the MIA, MAICPA and ACFE conduct various activities that were specifically intended to increase awareness of forensic accounting services. They publish journals, disseminate information to members through newsletters and conduct seminars, courses and conferences on forensic accounting services. Some examples of these wide arrays of activities are depicted in Table 3.1.

Weaver, Trevino, and Cochran (1999) included professional association as an external factor in an empirical research on the environmental factors that influence corporate ethics program. The results confirmed that professional body had a significant influence on organization's adoption of ethics program. Furthermore, innovation adoption studies contend that professional bodies provide information to organizations and this significantly influences the intention to adopt (Swan and Newell 1995; Swan, Newell, and Robertson 2000; Wejnert 2002; Damanpour and Schneider 2006).

In addition, 90% of the field study participants shared the same view on the influence of professional bodies. The participants acknowledged that professional bodies raised their awareness of forensic accounting services. They also referred to the role of seminars and courses, journals and magazines, newsletter and flyers on forensic accounting services. Based on this evidence, the following hypothesis is proposed:

H1: Professional bodies' activities will positively influence large Malaysian companies' awareness of forensic accounting services.

6.2.1.2 Accounting Firms

The Diffusion of Innovation theory contends that awareness of an innovation obtained through vendor activities is an important prerequisite towards adoption decision (Rogers 1995). Organizational innovation adoption studies provide empirical evidence that the persuasive activities of vendors can significantly influence the likelihood that an innovation will be adopted (Frambach et al.1998; Hultink et al. 1997; Hofmeyer 2005; Doolin and Troshani 2007; Lee and Shim 2007; Lee and Larsen 2009).

Since both vendors and accounting firms are the suppliers of the intended service, the role of accounting firms is parallel to the role of vendors. Research on the 'Big Four' companies comprising Ernst & Young, PricewaterhouseCoopers, Delloite and KPMG revealed that these companies conduct a wide range of activities in promoting the forensic accounting services that they provide. Some of these activities include conducting seminar/courses, publishing articles in journals/magazines, disseminating information through white papers/newsletter/pamphlets and publishing fraud survey reports.

The field study participants agreed that accounting firms had increased their awareness of forensic accounting services. 70% of the participants confirmed that the marketing strategies of accounting firms were successful in making them become more aware of forensic accounting services. They viewed that the main activities of accounting firms aside from seminars, courses, and publications are fraud survey reports. They also acknowledged that external auditors from the accounting firms provided information on forensic accounting services and recommended forensic accounting services use in fraud detection and prevention. Based on this evidence, the following hypothesis is proposed:

H2: Accounting firms' activities will positively influence large Malaysian companies' awareness of forensic accounting services.

6.2.1.3 Media

Wejnert (2002) argued that awareness of innovations by organizations is dependent on the source of the information. She asserts that although media to a small extent does influence innovations that are concerned with public consequences, it is not an influential factor on the adoption of innovations intended for organizations. In addition, no specific studies were identified in the literature that suggested media as raising awareness of forensic accounting services.

However, the field study analysis prompted the inclusion of this construct in the conceptual model due to the support of 70% of the participants. The participants gave anecdotal evidences of media reports that directly influenced their awareness of forensic accounting services. Newspaper was the most quoted as the articles highlighted high profile fraud cases that have utilized forensic accounting services in their investigation. The strongly supported link between media and awareness from the field study analysis established media as an external actor. Based on this evidence, the following hypothesis is proposed:

H3: Media activities will positively influence large Malaysian companies' awareness of forensic accounting services.

6.2.1.4 Government

Past research has examined and consistently reported on the significant role of government policies in influencing innovation adoption (Kuan and Chau 2001; Wymer and Regan 2005; Chang et al. 2007). However, the significant role of government policies in these studies is perceived as creating pressure to adopt the innovation rather than creating awareness of the innovation. Although Hofmeyer (2005) examined the role of government involvement as creating awareness of an innovation, the influence was found to be not significant. No specific studies were identified in the literature that suggested government emphasis as significantly raising awareness of forensic accounting services.

However, the field study participants perceived the role of government influence on increasing awareness of forensic accounting services. The participants expressed the view that government requirement on risk management and regulatory authorities' emphasis on forensic accounting services increased their awareness of forensic accounting services. Based on this evidence, the following hypothesis is proposed:

H4: Government activities will positively influence large Malaysian companies' awareness of forensic accounting services.

6.2.2 Hypotheses Relating to Cognitive Factors

6.2.2.1 Awareness of Forensic Accounting Services

The HOE model contests that awareness leads to product evaluation and the resultant effect is the formation of an opinion or preference (Lavidge and Steiner 1961). Studies on innovation adoption have shown that awareness is a crucial prerequisite to the development of specific perceptions and that in turn leads to innovation adoption (Agarwal and Prasad 2000; Hofmeyer 2005). Therefore, awareness of forensic accounting services would guide the perception of the potential benefits of employing forensic accounting services. According to Hofmeyer (2005), although awareness is a precondition in forming beliefs, it is the perception of perceived benefits that drives attitude and subsequently intention. Although Hofmeyer (2005) in his study concluded that awareness is a prerequisite in developing perceptions of the benefits of a B2B trading exchange, he did not study the effect of awareness on perceived risks.

Mitra, Reiss, and Cappella (1999) from their study on various services confirmed that the higher the pre purchase knowledge of a service, the lower would be the perceived risks of the service. However, this was a comparison study and did not use the TPB to evaluate the impact of perceived risks on attitude and behavioral intention. To fill this theoretical research gap this study intends to investigate the influence of awareness on both perceived benefits and perceived risks.

Data gathered from the qualitative study revealed that the participants were aware of both the benefits and risks of acquiring forensic accounting services. The field study analysis was in line with the literature review whereby all the participants had a general agreement that awareness of forensic accounting services would influence their perceptions of the benefits of acquiring forensic accounting services. In addition, 90% of the participants confirmed that awareness of forensic accounting services would influence their perceptions of the risks of acquiring forensic accounting services . Based on this evidence, the following hypotheses are proposed:

H5a: Awareness of forensic accounting services will positively influence the perceived benefits of using forensic accounting services.

H5b: Awareness of forensic accounting services will negatively influence the perceived risks of using forensic accounting services.

6.2.2.2 Perceived Benefits of Forensic Accounting Services

Perceived benefit is the result of the evaluation of the possibility of achieving positive outcomes by acquiring forensic accounting services. Numerous positive benefits of forensic accounting services were found from the literature review. First, acquiring forensic accounting services emits a policy of warning and deters any unethical individual behavior in the organization (Peterson and Zikmund 2004; Wells 2004; Kranacher 2006). Second, in the detection of fraud, forensic accounting services help in the recovery of assets and cash that have been stolen (PricewaterhouseCoopers 2006b). Third, by doing the right thing, the image of the firm is enhanced through the eyes of stakeholders (Fombrum and Shanley 1990; Schnatterly 2003).

In addition, forensic accountants demonstrate greater impartiality and trustworthiness than internal auditors in fraud detection and prevention (Chew 2001). The in-depth fraud and accounting expertise of forensic accountant would greatly complement existing internal or external auditors (Harris and Brown 2000; Chew 2001; Boritz, Kotchetova, and Robinson 2008). In addition, forensic accountants are capable of

gathering and presenting evidence in a specialized and concise approach (AICPA Forensic and Litigation Services Committee 2006; Chary and Kiranmai 2006). Finally, forensic accounting services provide integral manpower resources for companies to conduct comprehensive investigations in the incidence of a major fraud (Chew 2001).

Organizational ethical decision-making and innovation adoption studies have shown that perceived benefit has a significant impact on both attitude and intention (Featherman and Pavlou 2003; Hofmeyer 2005; Lu, C. Hsu and H. Hsu 2005; Stevens et al. 2005). HBM studies on protective behavior intention have also confirmed that perceived benefit is an important antecedent of intention and behavior (Vanlandingham et al. 1995; Wulfert and Wan 1995; Savage and Clarke 2001; Roden 2004; Ham 2005; McClenahan et al. 2007).

All the field study participants shared the view that the perceived benefits of forensic accounting services is influential in forming their attitude towards forensic accounting services. The participants recognized forensic accounting services' role in tightening internal control systems, deterring fraud from occurring, recovering lost cash and assets, enhancing firm image, and gathering fraud evidence. Based on this support, the following hypothesis is proposed:

H6: The perceived benefits of using forensic accounting services will positively influence the attitude towards using forensic accounting services.

6.2.2.3 Perceived Risks of Forensic Accounting Services

In this study, perceived risks are the evaluative negative consequences associated with acquiring forensic accounting services. Based on the various aspects of perceived risks summarized by Fraedrich and Ferrell (1992) from the works of Jacoby and Kaplan (1972) and MacCrimmon, Wehrung, and Stanbury (1986), three relevant perceived risks have been selected for this study. The first is financial risk because the cost of forensic accounting services are high (Gray 2002). Since there is no guarantee for the detection of fraud and the recovery of losses nor for the total

prevention of fraud, the financial risk factor is therefore also high. Social risk is the probability that using the services will affect the way stakeholders view the company. The use of forensic accounting services might be viewed as an indication that the company is in serious problem and is incapable of internally solving its problem (Conley 2000). Third is performance risk, inherent when the service cannot be judged confidently prior to purchase (Hill 1988; Mitra, Reiss, and Capella 1999). Forensic accounting services pose this risk because it is difficult to evaluate the quality of the services before acquiring them.

Jurison (1995) conceptualized the negative relationship between perceived risks and attitude. This negative relationship has been empirically tested in various studies and found to be significant (Heijden, Verhagen, and Creemers 2003; Lajunen and Rasanen 2004; Roden 2004; Lu, C. Hsu and H. Hsu 2005; Wang 2005; Gewald, Wullenweber, and Weitzl 2006; Gooding et al. 2006; Ham 2006; McClenahan et al. 2007). Although both perceived risks and perceived benefits have been proven to directly impact attitude, composite models of TPB and HBM have used either perceived benefits/risks or attitude (Poss 2001; Ham 2006). Based on the importance of both perceived risks and perceived benefits as determinants of attitude, and to fill this theoretical research gap, this study models them as directly affecting attitude towards forensic accounting services.

The results of the field study support the literature review. The participants contended that forensic accounting services posed financial, social and performance risks. In addition, they also believed acquiring forensic accounting services poses two additional types of risk. The first is leakage of sensitive information that the company would not want to disclose to external parties. Secondly, forensic accounting services would tighten the rules and procedures in the internal control system of the company and this would restrict or curtail decision-making. The link between perceived risks and attitude was established by 80% of field study participants. This implies that the participants' attitude would be formed after they weigh the risks of acquiring forensic accounting services. Based on this evidence, the following hypothesis is proposed:

H7: The perceived risks of using forensic accounting services will negatively influence the attitude towards using forensic accounting services.

6.2.2.4 Attitude towards Forensic Accounting Services

The overall evaluation affect that forms positive or negative feelings about performing a particular behavior is defined as attitude (Fishbein and Ajzen 1975). Hence, in this study, attitude is the overall evaluative feeling formed towards forensic accounting services. TRA emphasizes the importance of attitude as a mediator to form behavioral intentions. When a positive affect is formed, the intention for a particular behavior increases. Vice versa, when a negative attitude is produced the behavioral intention decreases. This attitude behavior link has been established in numerous studies on protective behavior intention (Michels et al. 1995; Vanlandingham et al. 1995; Wulfert and Wan 1995; Quine, Rutter, and Arnold 1998; Poss 2001; Lajunen and Rasanen 2004; Wang 2005) and ethical decision-making (Randall and Gibson 1991; Kurland 1996; Flannery and May 2000; Buchan 2005; Carpenter and Reimers 2005).

All the field study participants agreed upon the relationship between attitude and intention. The participants expressed that if they had a positive feeling towards forensic accounting services based on the benefits, they would have the intention to use the services. The implication is that a positive attitude is an important indicator that would influence the intention to use forensic accounting services. Based on this evidence, the following hypothesis is proposed:

H8: The positive attitude towards using forensic accounting services will positively influence the intention to use forensic accounting services.

6.2.3 Hypotheses Relating to Normative Factor

6.2.3.1 Stakeholder Pressure

According to Fishbein and Ajzen (1975), normative factor is the person's perception on whether people important to him would want him to pursue a particular action. The normative factor at the organizational level would be stakeholder's pressure

(Stevens et al. 2005). The theory of stakeholder's management emphasized that organizations are under constant pressure to follow what they think the sentiment of stakeholders are (Hill and Jones 1992). Therefore, organizational decision-making may be predominantly based on what stakeholders think the organization should do.

Stakeholders may pressure large companies to utilize forensic accounting services in fraud detection and prevention. The literature review extracted five stakeholders; shareholders, banks/lenders, customers, board of directors and supplier. Stevens et al. (2005) studied the impact of stakeholder pressure as the normative factor of TPB. The results indicated that this construct has a significant influence on the ethical decision-making process of financial executives. Numerous other studies on ethical decision-making have established the significance of normative factors on behavioral intention (Gibson and Frakes 1997; Cordano and Frieze 2000; Carpenter and Reimers 2005; Gillet and Uddin 2005). Even studies done on protective behavior intention revealed that subjective norm is a significant predictor of either intention or behavior (Vanlandingham et al. 1995; Wulfert and Wan 1995; Cordano and Frieze 2000; Poss 2001; Savage and Clarke 2001; Lajunen and Rasanen 2004; Ham 2006).

70% of the field study participants shared the view that stakeholder pressure would influence their intention to use forensic accounting services. The participants identified two stakeholders; shareholders demand and board of directors' pressure. Hence, the present study proposes that stakeholder pressure would predict the intention of an organization to use forensic accounting services for fraud detection and prevention. Based on this evidence, the following hypothesis is proposed:

H9: Stakeholders' pressure will positively influence the intention to use forensic accounting services by large Malaysian companies.

6.2.4 Hypotheses Relating to Control Factors

6.2.4.1 Internal Control Factors

6.2.4.1.1 Financial Cost

Forensic accounting services is an expensive service that may cost organizations up to hundreds of thousands of dollars (Gray 2002; Grippo and Ibex 2003; Apostolou and Crumbley 2008). Organizations are at core economic institutions, and economic motivations are the focal point of organizational decision-making (Ilinitch and Wicks 1996). Although the benefits of investing in adequate controls would in the long run outweigh the high costs (William 1952; Christensen, Byington, and Blalock 2005; Chan 2006), organizations may still be disinclined to commit to a costly investment. The rationale is because weighing in the cost-benefit is not an easy task when the tangible cost has to be compared with intangible benefits (William 1952).

A study by Bierstaker, Brody, and Pacini (2006) on accountants' perceptions regarding fraud detection and prevention revealed that organizational use of forensic accountants was the least often used of any anti-fraud method but had the highest mean effectiveness rating. Their assumption that organizations with greater revenue would have increased resources to meet the expense of effectual anti-fraud methods such as forensic accounting services was fully supported. Interestingly, even organizations with turnover of more than $500 million were reluctant to use forensic accounting services due to high financial cost. They concluded that only organizations with turnover of more than $1 billion could afford forensic accounting services.

Ibrahim and Abdullah (2007) in their qualitative study on forensic accounting in Malaysia confirmed that organizations viewed forensic accounting services as a costly service. Only companies with a huge amount of turnover can meet the expenses. They reiterated that financial cost is the major impediment towards the utilization of forensic accounting services in Malaysian companies. Flannery and May (2000) applied TPB in their study and included financial costs as one of the perceived behavioral control factor. The interviewed managers confirmed during the qualitative field study that financial cost implications would influence their ethical

decision intention. Quantitative results affirmed that financial cost was the most significant construct in the ethical decision-making conceptual framework (Flannery and May 2000). The study recommends that future organizational research scrutinize the role that financial cost plays in differing ethical decision intentions.

Field study participants agreed that forensic accounting services are not inexpensive and pointed out that their organizations have to take financial cost into consideration. The link between financial cost and intention is also supported by 60% of the participants. Based on this evidence, the following hypothesis is proposed:

H10a: The perceived financial cost of forensic accounting services will negatively influence the intention to use forensic accounting services by large Malaysian companies.

According to Grewal, Gotlieb, and Marmorstein (1994) the cost of a product is an important factor that determines perceived risk. Furthermore, Sweeney, Soutar, and Johnson (1999) reiterated that the higher the financial cost, the greater in the degree of uncertainty associated with acquiring the product. Chen and Dubinsky (2003) contended that the higher the cost, the higher would be the financial and performance risks of the product. In their empirical study on perceived customer value in e-commerce, Chen and Dubinsky (2003) confirmed the significant positive influence of perceived price on perceived risks. Hence, this study anticipates financial cost as positively influencing the perceived risks of acquiring forensic accounting services.

40% of the field study participants confirmed the link between financial cost and perceived risks. They believed that the high cost of forensic accounting services poses increased risks to their organizations. Based on this evidence, the following hypothesis is proposed:

H10b: The perceived financial cost of forensic accounting services will positively influence the perceived risks of using forensic accounting services by large Malaysian companies.

6.2.4.1.2 Organizational Ethical Climate

The literature review attested that the basis of fraud prevention and detection strategies are ethical deliberations (Krummeck 2000; Castelleno and Lightle 2005; Koestenbaum, Keys, and Weirich 2005; Grace Jr. and Haupert 2006; Kranacher 2006; Hernandez and Groot 2007). However, it is management that has the capacity of setting the 'tone at the top' that would in turn establish the ethical environment of the organization (Trevino 1986; Paine 1997; Sims 2000; Sims and Brinkmann 2002). According to COSO (1992), the ethical environment of an organization takes into account the upper management's tone in achieving organizational objectives, their value judgments, and management style. In addition, Roy (1998) reiterated that the accounting atmosphere in the organization is determined by the 'tone at the top' this in turn influences the accounting managers' ethical decisions. PricewaterhouseCoopers (2006b) asserted that the attitude of top management including audit committees in sending a clear message of 'zero tolerance' towards fraud pervade the ethical environment of the organization.

Daigle, Kizirian, and Sneathen (2005) in their research on information systems audit engagements concluded that the organization's 'tone at the top" has a significant influence on the strength of the organization's security controls. In addition, Rae and Subramaniam (2006) found that there is a positive relationship between the organizational ethical environment and the strength of internal control procedures. KPMG (2008) reiterated that a high-integrity organization is crucial and imperative in determining fraud detection and prevention strategies. Furthermore, past research has established the significant influence of ethical climate on both ethical intention and behavior (Bartels et al. 1998; Trevino, Butterfield, and McCabe 1998; Flannery and May 2000; Martin and Cullen 2005; Shafer 2008). Therefore, organizational ethical climate would influence the organization's intention to acquire effective fraud prevention and detection method including forensic accounting services.

The field study participants agreed upon the importance of ethical climate in their organization with comments such as expect everyone in the organization to act ethically and with integrity; any fraud would not be tolerated; the need for high standard for governance, importance of adhering to organizational code of ethics;

and no room for personal interest in the organization. 80% of the participants confirmed the link between organizational ethical climate and intention to use forensic accounting services. They believed if there is a high ethical integrity in the organization, fraud will not be tolerated at all and there is a urgency to use forensic accounting services. Based on this evidence, the following hypothesis is proposed:

H11: Organizational ethical climate will positively influence the intention to use forensic accounting services by large Malaysian companies.

6.2.4.1.3 Strength of Internal Control System

The foremost anti-fraud method utilized by majority of organizations is the internal control system (Carpenter and Mahoney 2001; KPMG 2005; PricewaterhouseCoopers 2006a). Hemraj (2004) believed that an efficiently implemented system of control could counteract the intention, method, and opportunity to perpetrate fraud. The results of the study by Matsumura and Tucker (1992) revealed that strength of internal control system significantly influenced fraud detection and prevention in organizations. In addition, Alleyne and Howard (2005) in their study reported that organizations with sound internal controls are more capable in fraud detection and prevention.

The motivation for forensic accounting services aroused due to the failure of internal and external audit in ensuring that the internal control system had the efficacy and accountability stipulated by organizations operating in current vigorous governance settings (Chary and Kiranmai 2006). Therefore, organizations that perceived their internal control system as effective would not have the intention to use forensic accounting services for fraud detection and prevention. However, if the organization's strength of internal control system were weak, it would utilize proactive measures such as employing forensic accounting services that would rectify the weaknesses.

The field study analysis yielded similar results. All the integral components of internal control system pointed out by the participants are akin to the components gathered from the literature review. All the participants responded that organizations

are expected to utilize forensic accounting services if their internal control systems are not efficient. Based on this evidence, the following hypothesis is proposed:

H12: Strength of internal control will negatively influence the intention to use forensic accounting services by large Malaysian companies.

6.2.4.2 External Control Factor

6.2.4.2.1 Government Pressure

In reaction to corporate and accounting scandals, the reverberations of which are still being felt throughout the U.S. economy, U.S. lawmakers passed the Sarbanes-Oxley Act in 2002. The statutes of the Act and the new Securities and Exchange Commission (SEC) initiatives that emerged are deemed as the most momentous accounting and corporate legislation since 1933 (Badawi 2005). In addition, multifarious laws and regulations have also materialized worldwide, presenting organizations with a wide range of directives that have to be integrated into their anti-fraud efforts. These laws include The Corporate Law Economic Reform Program Act (Australia), The Canadian Criminal Code, Financial Services Action Plan (European Union), United Kingdom Companies (Audit, Investigations, and Community Enterprise) Act of 2004 and Malaysian Code of Corporate Governance.

Fundamentally, these government regulations necessitate organizations to be more responsible in the detection and prevention of fraud and material misstatement. For example, the Sarbanes-Oxley Act in the U.S. necessitates auditors to apply forensic techniques to identify any existing fraud. Weaver, Trevino, and Cochran (1999) from their research concluded that government pressure is a significant influence on organization's ethics program. Kuan and Chau (2001) in their innovation adoption study confirmed that firms that adopted the innovation perceived significantly higher government pressure compared to firms than did not adopt. Hence, government pressure has been established as a significant predictor of ethical decision-making and innovation adoption.

The participants of the field study agreed that the Malaysian security commission's guidelines indirectly forces public listed companies to use forensic accounting services and expressed concern on the numerous penalty set for non-compliance on financial reporting. The participants also pointed out that government insists on forensic accounting services use if there is a major fraud in the organization. In addition, the link between government pressure and intention to use forensic accounting services in fraud detection and prevention was supported by 80% of the field study participants. Based on this evidence, the following hypothesis is proposed:

H13: Government pressure will positively influence the intention to use forensic accounting services by large Malaysian companies.

6.2.5 Hypotheses Relating to Threat Perception Factors

6.2.5.1 Perceived Severity of Fraud

Threat perception plays a vital role in triggering an individual's impetus to take on a behavior to avoid an adverse condition (Abraham and Sheeran 2005). In this study, perceived severity may help discriminate organizations who perceive the cost of fraud as either low or high whilst perceived susceptibility may distinguish organizations who have accepted their vulnerability to fraud and those who have not. The literature review has identified multifarious costs of fraud to the organization. The three major costs include direct financial loss, management cost, and collateral damage (PricewaterhouseCoopers 2007b).

Perceived severity has been established by HBM studies as an important determinant of the decision to use protective measures (Vanlandingham et al. 1995; Lajunen and Rasanen 2004; Roden 2004). If the perceptions of severity of the problem increase, then the possibility of following a particular protective action to avoid the negative consequence would also increase (Janz and Becker 1984). One of the proactive measures that can be used by an organization to allay the fear of severe fraud consequences is to use forensic accounting services. Therefore, an organization that

believes the consequences of fraud are severe would engage forensic accounting services.

The field study participants expressed concern on the costs of fraud such as monetary loss, high cost of investigation, damage to company image, low employee morale and loss of customers. 80% of the participants also had a general agreement that perceived severity of fraud would influence their intention to use forensic accounting services. Based on this evidence, the following hypothesis is proposed:

H14: The perceived severity of fraud will positively influence the intention to use forensic accounting services by large Malaysian companies.

6.2.5.2 Perceived Susceptibility to Fraud

The 'illusion of safety' felt by organizations has been reported by fraud surveys as one of the major contributing factor towards the increased perpetration of fraud (KPMG 2009). However, if organizations perceived that they are susceptible to fraud, they will take proactive measures to manage the risks (KPMG 2005). Engaging forensic accounting services is an integral measure that could allay the perceived susceptibility to fraud (Ramaswamy 2005). The significant influence of perceived susceptibility on behavior intention have been reported by (Michels et al. 1995; Vanlandingham et al. 1995; Poss 2001; Roden 2004; Ham 2006; Levy, Polman, and Clough 2008).

All the field study participants agreed that if they were susceptible to fraud, they would take up forensic accounting services for fraud detection and prevention. However, 70% of the participants did not think that their organization would be victimized by fraud. The 'illusion of safety' stated in the literature is confirmed through the field study. Based on this evidence, the following hypothesis is proposed:

H15: The perceived susceptibility of fraud will positively influence the intention to use forensic accounting services by large Malaysian companies.

6.2.6 Hypotheses Relating to Contextual Factors

6.2.6.1 Organizational Size

Organization size has been identified by fraud studies as a significant indicator of fraud (Staw and Swajkoski 1975; Gricar 1983; Dalton and Kesner 1988; Kesner, Victor, and Lamont 1988; Baucus 1989; Baucus and Near 1991; Saksena 2001). However, the direction of the influence in these studies varies. Barnes and Webb (2007) argued that although large companies have increased and complex financial transactions, they have more effective control systems installed to prevent fraud. On the other hand, in smaller firms, while financial transactions are easier to monitor, there is lack of adequate control measures. In conclusion, although size would significantly influence the occurrence and type of fraud, the direction of influence needs further investigation.

Ethical decision-making studies have consistently established organizational size to influence the inclination to behave ethically (Ford and Richardson 1994; O'Fallon and Butterfield 2005). However, O'Fallon and Butterfield (2005) in their meta-analysis concluded that further research on the influence of size on organizational ethical decision-making is needed due to the mixed results in the direction of influence. Empirical studies have verified organizational size as an important determinant of innovation adoption (Bajwa et al. 2005). Similarly, the direction of the relationship has been mixed (Frambach and Schillewaert 2002).

Harrison, Mykytyn, and Riemenschnieder (1997) included organizational size in their TPB theoretical framework as a moderating factor. Results indicated that firm size significantly moderated the relationships between attitude, subjective norms, and perceived behavioral control to intention. Hence, this study will use the same approach and investigate the moderating effect of organizational size on the relationship between behavioral intention to use forensic accounting services and its immediate antecedents.

The field study participants agreed that turnover of the organization is an indicator of company size. The influence of organizational size on the intention to use forensic

accounting services was also supported by the 80% of the field study participants. Based on this evidence, the following hypothesis is proposed:

H16a: Organizational size has a significant moderating effect on the relationship between behavioral intention to use forensic accounting services and its immediate antecedents.

6.2.6.2 Industry Type

Fraud studies had concluded that type of fraud varies across industry type and the different industrial cultures would affect the organization's susceptibility to occupational fraud (Baucus and Near 1991; Beasley et al. 2000; Holtfreter 2005; Barnes and Webb 2007). Ethical decision-making studies also have highlighted the significant influence of industry type on organizational ethical intention (Ford and Richardson 1994; O'Fallon and Butterfield 2005). In order to comprehend fully the effect of industry type, the method utilized by Harrison, Mykytyn, and Riemenschnieder (1997) will be applied. Therefore, this study will examine the moderating effect of industry type on the relationship between behavioral intention to use forensic accounting services and its immediate antecedents.

The field study participants pointed out that the complexity of business structure and whether the industry is regulated or not would influence the decision-making process. In addition, the link between industry type and intention was well supported by 80% of the participants. Based on this evidence, the following hypothesis is proposed:

H16b: Industry type has a significant moderating effect on the relationship between behavioral intention to use forensic accounting services and its immediate antecedents.

6.2.6.3 Organizational Type

Barnes and Webb (2007) in their research reported that occupational fraud is significantly greater in public listed companies and private companies compared to public sector organizations. In addition, Holtfreter (2005) found that there were significant differences between publicly traded and privately held organizations in the type of fraud committed. Therefore, organizational type might moderate the relationship between behavioral intention to use forensic accounting services and its immediate antecedents.

Field study participants stated that listed companies were more accountable to stakeholders and had higher inclination to use forensic accounting services. On the other hand, private companies were perceived to be tightly controlled, had visibly less risks, and might not want to utilize forensic accounting services. The influence of these two types of company on intention was supported by 50% of the participants. Based on this evidence, the following hypothesis is proposed:

H16c: Organizational type has a significant moderating effect on the relationship between behavioral intention to use forensic accounting services and its immediate antecedents.

6.3 Questionnaire Development

This section describes the development of the measurement scales based on the final research model. There are altogether seven factors and eighteen constructs in the model. Multiple items have to be crystallized for each construct to ensure reliable and valid measurement of the assessment model. The first step is extensive literature review of previously developed instruments to identify items that could be adapted, adopted or developed for each construct. In addition, the 76 measures derived from the field study were also scrutinized and integrated into the questionnaire. Therefore, content validity is maximized since most items were developed based on both literature review and field study analysis.

The developed questionnaire was then subjected to extensive review by the two supervisors of this study, an associate professor from a Malaysian university and a CFO from a large Malaysian company. The consultations further refined the questionnaire and enhanced the content validity of the items. The final instrument comprised of an initial section on demographics followed by 75 Likert style items. At the end of the survey, the respondents were given a short request form for a report on the results of the survey. The interested participants could ask for the report to be sent to them by mail or e-mail.

The finalized survey was accompanied with a brief introductory letter to the participants. The emphasis of the letter is the background of the study as well as it's objectives and intended contributions. The letter also accentuates the voluntary nature of participation and the confidentiality of respondents. In order to enhance the response rate, a letter from the Deputy Director General of Inland Revenue Board (Appendix 3) requesting the CFO's of the relevant companies to assist the researcher in completing the questionnaire was attached.

6.3.1 Organizational Characteristics Development

There are seven sections in the finalized survey. The first section is on organizational characteristics. The questions deal with the basic characteristics of the organization specifically industry type, turnover, number of employees, type of company and organizational usage of forensic accounting services. The participants need to check the boxes that indicate their organizations' characteristics.

Industry type was classified into 16 types based on the categories identified by KPMG in their fraud survey report (KPMG 2005). Organization turnover was staggered from less than RM5 million to greater than RM1 billion. The numbers of employees were grouped and staggered from less than 50 to greater than 10,000. The categories were designed such a way companies that do not fall into the large Malaysian company definition stipulated by National SME Development Council (2005) would be eliminated.

Company type was listed as public listed, private limited company and others. For type of forensic accounting services the company is currently using or has previously acquired, the respondents are asked to check as many boxes as possible. There were nine different types of services identified through literature (Zhang 2005). If the type of forensic accounting services the respondents have utilized could not be categorized into the nine classifications provided in the questionnaire, they were required to specify the particular service they have used.

6.3.2 Measurement Instrument Development

The ensuing sections of the questionnaire comprises of 75 Likert scale responses. The participants were asked to indicate the extent to which they disagree or agree with the given statements. They were asked to check the appropriate number on a scale of 1 (strongly disagree) to 6 (strongly agree). The 6-point Likert scale namely: 1- Strongly Disagree, 2- Disagree, 3- Somewhat Disagree, 4- Somewhat Agree, 5- Agree, and 6- Strongly Agree was chosen for all the 76 items. Trompenaars and Hampden-Turner (1997) in their research argued that survey respondents from Asian countries, have a high tendency to choose neutral responses. Cooper and Schnindler (2008) reiterate that the respondents' inclination to choose the middle response would lead to central tendency error. Therefore, the middle response for a seven-point Likert scale "neither agree nor disagree" was eliminated and the final result is a six-point Likert scale for all items.

The 75 items developed comprises of 56 reflective items and 19 formative items. Traditional measurement models tend to rely on reflective items (Churchill 1979). Reflective items are deemed to be caused by the latent variable. Due to the causal nature of the relationship between each item and the latent variable, any change in the item would result in changes in the corresponding latent variable. Therefore, there are high correlations between items (Fornell and Bookstein 1982).

On the other hand, the formative items show the opposite direction of causal relationship (Diamantopoulos and Winklhofer 2001). Therefore, the items cause the latent variable. The items are assured to be not correlated and measure different

underlying dimensions of the latent variable (Chin 1998). The differing nature of the constructs in the conceptual model warranted the need for both formative and reflective items. The rationale is to develop items that could proficiently measure each individual construct.

Theoretical deliberations are integral in determining whether a construct should be modeled as having reflective or formative indicators (Jarvis, Mackenzie and Podsakoff 2003; Diamantopoulus and Siguaw 2006; Coltman et al. 2008). In some cases, choosing correctly between reflective vs. formative measures can be difficult (Fayers et al. 1997; Hulland 1999; Diamantopoulus and Siguaw 2006). In response to this, Jarvis, Mackenzie and Podsakoff (2003) developed a set of conceptual criteria that can be used as a guideline for determining the choice of either a reflective or formative measurement perspective. The decision rules are summarized in Table 6.1.

Table 6.1: Decision rules for formative or reflective measurements
Source: Jarvis, Mackenzie, and Podsakoff (2003)

	Formative model	**Reflective model**
1. Direction of causality from construct to measure implied by the conceptual definition	Direction of causality is from items to construct	Direction of causality is from construct to items
Are the indicators (items) (a) defining characteristics or (b) manifestations of the construct?	Indicators are defining characteristics of the construct	Indicators are manifestations of the construct
Would changes in the indicators/items cause changes in the construct or not?	Changes in the indicators should cause changes in the construct	Changes in the indicator should not cause changes in the construct
Would changes in the construct cause changes in the indicators?	Changes in the construct do not cause changes in the indicators	Changes in the construct do cause changes in the indicators
2. Interchangeability of the indicators/items	Indicators need not be interchangeable	Indicators should be interchangeable
Should the indicators have the same or similar content?	Indicators need not have the same or similar content	Indicators should have the same or similar content theme
Do the indicators share a common theme?	Indicators need not share a common theme	Indicators should share a common theme

	Formative model	Reflective model
Would dropping one of the domain of the construct indicators alter the conceptual domain of the construct?	Dropping an indicator may alter the conceptual domain of the construct	Dropping an indicator should not alter the conceptual domain of the construct
3. Covariation among the indicators	Not necessary for indicators to covary with each other	Indicators are expected to covary with each other
Should a change in one of the indicators be associated with changes in the other indicators?	Not necessarily	Yes
4. Nomological net of the construct indicators	Nomological net for the indicators may differ	Nomological net for the indicators should not differ
Are the indicators/items expected to have the same antecedents and consequences?	Indicators are not required to have the same antecedents and consequences	Indicators are required to have the same antecedents and consequences

Based on the above conceptual considerations and further literature suggestions, the nineteen constructs were scrutinized and were modeled as either reflective or formative. Bagozzi (1984), and Fornell and Bookstein (1982) emphasized that often the reflective nature of constructs informs the decision for a reflective perspective. For example, it is inherent that 'attitude' is conceptually viewed as a reflective construct (Diamantopoulus and Siguaw 2006; Coltman et al. 2008). Similarly in this study, the traditional reflective measurement perspectives which drives conventional constructs such as attitude, behavioral intention, perceived benefit, perceived risk, perceived severity, perceived susceptibility and perceived behavioral control is applied. It is logical to view that these traits are innate and can be "measured by eliciting responses to indicators that are evoked by these constructs" (Coltman et al. 2008, 5).

On the other hand, it was apparent that the external factor constructs describing the activities of professional bodies, accounting firms, media and government were more formative in nature. The wide and diverse range of activities conducted by them can be considered as different facets that form these factors. Likewise, stakeholder pressure was perceived to be applied by shareholders, board of directors, suppliers,

banks and customers. Rationally, causality would flow from the indicators to the construct. These different stakeholders' pressures collectively form and measure the construct. Hence, it makes sense to model this construct as having formative indicators. Details of the items for each construct are provided in the following sections.

6.3.2.1 External Factors

External factors are factors outside the organization that have influenced the organization to be aware of forensic accounting services. The literature review and field study have identified four external factors namely; professional bodies, accounting firms, media, and government. The questions in this section are listed as statements that may familiarize the respondents with forensic accounting services. Altogether, 14 items were included in this part of the survey. The items were developed by referencing both literature review and field study data.

The three items for professional bodies focused on their activities specifically; conducting seminars/courses, publishing articles in journal/magazines and distributing information through newsletters/pamphlets. Altogether, five items were developed for accounting firms due to their multifarious role. As service providers, accounting firms explicitly promote forensic accounting services through auditors, journals/magazines, seminars/courses, fraud survey reports and newsletters. Media's role in increasing forensic accounting services awareness are mainly through articles on the importance of acquiring forensic accounting services for fraud detection and prevention, and the engagement of forensic accounting services in high profile fraud cases. The last external factor also yielded three items focusing on regulatory authorities' emphasis on forensic accounting services, risk management introduced by KLSE and government policies in mitigating fraud. All fourteen items are formative in nature. The items measured by each construct are listed in the Table 6.2.

Table 6.2: Survey items related to external factors

Construct	Item	Measure	Instrument Reference	Source Reference
Professional Bodies	PB1	Professional bodies conduct seminars / courses on fraud that describe the role of forensic accounting services in fraud detection and prevention.	2.1	Field Study
	PB2	Professional bodies publish articles in journals or magazines on fraud and mention the role of forensic accounting services.	2.2	Renick (2007); Field Study
	PB3	Professional bodies distribute information on forensic accounting services to members through newsletters or pamphlets.	2.3	Field Study
Accounting Firms	AF1	Accounting firms provide information through auditors on the use of forensic accounting services for fraud detection and prevention.	2.4	Hofmeyer (2005); Field Study
	AF2	Accounting firms promote forensic accounting services for the detection and prevention of fraud via journals and magazines.	2.5	Hofmeyer (2005); Field Study
	AF3	Accounting firms promote forensic accounting services for the detection and prevention of fraud via seminars and courses.	2.6	Hofmeyer (2005); Field Study
	AF4	Fraud survey reports published by big accounting firms provide information on the role of forensic accounting services in fraud detection and prevention.	2.7	KPMG (2006); Field Study

Construct	Item	Measure	Instrument Reference	Source Reference
	AF5	Accounting firms distribute information on forensic accounting services through newsletters and pamphlets.	2.8	Hofmeyer (2005); Field Study
Media	MD1	Media highlights the importance of ensuring that financial professionals have the necessary training and skills on forensic accounting services.	2.9	Houck et al. (2008)
	MD2	Magazines and journals report news on high profile fraud cases and the use of forensic accounting services in these cases.	2.10	Houck et al. (2008); Field Study
	MD3	Newspapers report news on high profile fraud cases and the use of forensic accounting services in these cases.	2.11	Houck et al. (2008); Field Study
Government	GOV1	Regulatory authorities' emphasis on forensic accounting services gives my company information on the role of forensic accounting services for fraud detection and prevention.	2.12	Hofmeyer (2005); Field Study
	GOV2	Risk management introduced by KLSE created an awareness of forensic accounting services.	2.13	Field study
	GOV3	Government policies to mitigate fraud stimulate a supply of information on forensic accounting services.	2.14	Field Study

6.3.2.2 Cognitive Factors

Cognitive factors comprises of awareness of forensic accounting services, perceived benefits of forensic accounting services, perceived risks of forensic accounting services, and attitude towards forensic accounting services. The literature and field study suggested that the awareness of forensic accounting services would lead towards the formation of both the perceived benefits and perceived risks of forensic accounting services. In addition, the formation of attitude towards forensic accounting services is based on the salient beliefs on the benefits and risks of forensic accounting services. There are nineteen reflective items in this section: three items on the awareness of forensic accounting services, eight items on the perceived benefits of forensic accounting services, five items on the perceived risks of forensic accounting services and the final three items on the attitude towards forensic accounting services. The items were formed by referencing both literature review and field study data. The three awareness items centered on the familiarity of forensic accounting services role and familiarity of forensic accounting services benefits and risks.

Due to the numerous perceived benefits of forensic accounting services, eight items were developed. The focus of the items are on the role of forensic accounting services in fraud deterrence, asset recovery, enhancing image of company, identifying and quantifying fraud damages, gathering and presenting evidence, and tightening internal control systems. Moreover, forensic accountants' expertise and skills in fraud detection and prevention was also recognized and referenced as items.

In addition, five items on the perceived risks of forensic accounting services were formed and these include, items on financial risk, social risk, performance risk, leakage of sensitive information, and curtailment of decision-making. The final three items on attitude were on the overall evaluative feelings towards forensic accounting services. All the items are reflective. The items and the source of reference are listed in Table 6.3.

Table 6.3: Survey items related to cognitive factors

Construct	Item	Measure	Instrument Reference	Source Reference
Awareness of Forensic Accounting Services	AW1	I am aware of the role of forensic accounting services in fraud detection and prevention.	3.1	Hofmeyer (2005)
	AW2	I am familiar with the benefits of using forensic accounting services.	3.2	Hofmeyer (2005); Field Study
	AW3	I am familiar with the risks involved in using forensic accounting services.	3.3	Hofmeyer (2005); Field Study
Perceived Benefits of Forensic Accounting Services	PBF1	Using forensic accounting services helps to deter fraud from happening.	3.4	Peterson and Zikmund (2004); Kranacher (2006); Field Study
	PBF2	Forensic accounting services helps in the recovery of cash and assets that have been stolen.	3.5	Pricewaterhouse-Coopers (2005); Field Study
	PBF3	Using forensic accounting services enhances the image of my company.	3.6	Fombrum and Shanley (1990); Field Study
	PBF4	Forensic accountants have more objectivity and credibility than internal auditors or company accountants in fraud detection and prevention.	3.7	Chew (2001)
	PBF5	Forensic accountants have accounting expertise and industry knowledge in handling fraud.	3.8	Chew (2001)
	PBF6	Forensic accounting services identify and quantify damage due to fraud.	3.9	Stimpson (2007)
	PBF7	Forensic accounting services gathers and presents evidence in a professional and concise manner.	3.10	Chary and Kiranmai (2006); Field Study

Construct	Item	Measure	Instrument Reference	Source Reference
	PBF8	Forensic accounting services helps to tighten internal control processes and procedures.	3.11	Chary and Kiranmai (2006); Field Study
Perceived Risk of Forensic Accounting Services	PR1	Forensic accounting services are very costly and there is no guarantee of the detection and prevention of fraud.	3.12	Gray (2002); Christensen, Byington, and Blalock (2005); Field Study
	PR2	Using forensic accounting services is a sign to stakeholders that my company is having serious problems.	3.13	Conley (2000); Field Study
	PR3	It is difficult to evaluate the effectiveness of forensic accounting services in fraud detection and prevention before acquiring the services.	3.14	Hill (1988); Mitra, Reiss, and Capella (1999); Field Study
	PR4	Using forensic accounting services will cause sensitive information of my company to become known by the public and competitors.	3.15	Field Study
	PR5	Using forensic accounting services would restrict or curtail decision-making by the employees in my company.	3.16	Field Study
Attitude towards Forensic Accounting Services	ATT1	I think it is good to use forensic accounting services for fraud detection and prevention.	3.17	Agarwal and Prasad (2000); Field Study
	ATT2	Overall, my attitude towards forensic accounting services is positive.	3.18	Gewald, Wullenweber, and Weitzl (2006); Field Study
	ATT3	I believe that the benefits of forensic accounting services outweigh the associated risks.	3.19	Gewald, Wullenweber, and Weitzl (2006)

6.3.2.3 Normative Factor

According to the literature review and field study analysis, normative factors influence the company's decision-making process. In this case, the opinions of the stakeholders of an organization would persuade the organization's intention to use or not to use forensic accounting services in fraud detection and prevention. The five stakeholders suggested by literature and field study are shareholders, banks/lenders, customers, board of directors, and suppliers. Therefore, five formative items were included in the survey. The items and the source of reference are listed in Table 6.4.

Table 6.4: Survey items related to normative factor

Construct	Item	Measure	Instrument Reference	Source Reference
Stakeholder Pressure	SHP1	For fraud detection and prevention, my company's shareholders think we should use forensic accounting services.	4.1	Stevens et al. (2005); Hofmeyer (2005); Field Study
	SHP2	For fraud detection and prevention, my company's banks / lenders think we should use forensic accounting services.	4.2	Stevens et al. (2005); Hofmeyer (2005)
	SHP3	For fraud detection and prevention, my company's customers think we should use forensic accounting services.	4.3	Stevens et al. (2005); Hofmeyer (2005)
	SHP4	For fraud detection and prevention, my company's board of directors think we should use forensic accounting services.	4.4	MacKay, Parent, and Gemino (2004); Hofmeyer (2005); Field Study
	SHP5	For fraud detection and prevention, my company's suppliers think we should use forensic accounting services.	4.5	Stevens et al. (2005); Hofmeyer (2005)

6.3.2.4 Internal Control Factors

Internal control factors are factors inside the organization that either facilitates or impedes the behavior intention. The three internal control factors identified for this study are financial cost, strength of internal control, and organizational ethical climate.

Financial cost is an integral factor that affects organizational decision-making (Flannery and May 2000). This is due to the fact that organizations are at the core economic institutions and have to all times comply to cost-benefit considerations (Ilinitch and Wicks 1996). The imperative is to maximize benefits and minimize cost. Since forensic accounting services is expensive and the benefits are intangible, the financial cost of forensic accounting services could be a major factor that may sway the organizations intention to either use forensic accounting services or not. The field study findings confirmed that services are not cheap and that organizations have to take cost into consideration. All three items for this construct listed in Table 6.5 have been adapted from literature review and corroborated by field study findings.

Organizational ethical climate was conceptualized by Victor and Cullen (1988) to explain organizational decision-making, which include ethical substance. They developed a two dimensional model based on locus of analysis and ethical criterion. Five distinct types of ethical climate, instrumental, law and code, rules, caring and independence were identified and made into a 72 item questionnaire, the Ethical Climate Questionnaire (ECQ). The review by Martin and Cullen (2006) confirmed the significant influence of ethical climate as measured by the ECQ on organizational decision-making. Moreover, the meta-analysis confirms the validity, reliability, and robustness of ECQ (Martin and Cullen 2006).

However, the application of the ECQ in this study would cause questionnaire fatigue due to the large number of items in this survey. Researchers who have included organizational ethical climate as one of their constructs in their theoretical framework have invariably selected the items in the instrumental climate as the most appropriate measure of ethical decision-making (Flannery and May 2000; Buchan

2005). Furthermore, as suggested by Wimbush and Shepard (1994) the instrumental climate is the most suitable climate type to measure unethical behavior whilst the four other climate types support ethical behavior. Hence, all the nine items from the instrumental climate of the ECQ have been adopted for this study. The nine are reflective items and listed in Table 6.5.

The literature review revealed that strength of internal control system would influence the organization's intentions to use anti-fraud methods. If the internal control system of the organization is weak, forensic accounting services would be an effectual anti-fraud measure that could augment existing controls. Therefore, organizations who perceive their internal control system strength is weak would have the intention to use forensic accounting services in fraud detection and prevention. Field study analysis confirmed the influence on internal control strength in organizational intention to acquire forensic accounting services. The field study participants emphasized the five components on internal control system as outlined by COSO (1992). Based on the definition given by COSO and field study participants emphasis, nine items were developed to conceptualize this construct. All nine items are reflective in nature and listed in Table 6.5.

Table 6.5: Survey instrument items related to internal control factors

Construct	Item	Measure	Instrument Reference	Source Reference
Financial Cost	FC1	The cost of using forensic accounting services would influence my company's decision to use forensic accounting services.	6.17	Flannery and May 2000; Field Study
	FC2	My company cannot afford the cost of acquiring forensic accounting services.	6.18	Lee and Kozar (2008)
	FC3	Acquiring forensic accounting services is expensive.	6.19	Gray (2002); Field Study

Construct	Item	Measure	Instrument Reference	Reference
Organizational Ethical Climate	OEC1	In this company, people protect their own interest above all else.	6.1	Victor and Cullen (1988); Field Study
	OEC2	In this company, people are mostly out for themselves.	6.2	Victor and Cullen (1988)
	OEC3	There is no room for one's own personal morals or ethics in this company.	6.3	Victor and Cullen (1988)
	OEC4	People are expected to do anything to further the company's interest, regardless of the consequences.	6.4	Victor and Cullen (1988); Field Study
	OEC5	People here are concerned with company's interests - exclusion of all else.	6.5	Victor and Cullen (1988)
	OEC6	Work is considered substandard only when it hurts the company's interest.	6.6	Victor and Cullen (1988)
	OEC7	The major responsibility of people in this company is to control costs.	6.7	Victor and Cullen (1988)
Strength of Internal Control System	SICS1	In my company, sound integrity and ethical values particularly of top management are effectively developed and understood.	6.8	Ernst & Young (2002); COSO (1992)
	SICS2	The board of directors in my company understands and exercises governance and oversight responsibilities related to internal control.	6.9	Ernst & Young (2002); COSO (1992); Field Study
	SICS3	Management philosophy and operating style in my company support achieving effective internal control.	6.10	Ernst & Young (2002); COSO (1992)
	SICS4	My company's organizational structure supports effective internal control.	6.11	Ernst & Young (2002); COSO (1992); Field Study

Construct	Item	Measure	Instrument Reference	Reference
	SICS5	In my company, management and employees are assigned appropriate levels of authority and responsibilities to facilitate effective internal control.	6.12	Ernst & Young (2002); COSO (1992); Field Study
	SICS6	In my company, the process of identifying, analyzing, and managing risks is effective.	6.13	Ernst & Young (2002); COSO (1992); Field Study
	SICS7	The information and communication process in my company captures and provides information to appropriate personnel effectively.	6.14	Ernst & Young (2002), COSO (1992); Field Study
	SICS8	My company's policies and procedures are carried out effectively and necessary actions are consistently taken to address risks.	6.15	Ernst & Young (2002); COSO (1992); Field Study
	SICS9	My company's management effectively monitors controls to consider whether they are operating as intended.	6.16	Ernst & Young (2002); COSO (1992); Field Study

6.3.2.5 External Control Factor

External control factors are factors outside an organization that either impels or hinders the organization's intention. Only one external control factor was identified through the literature review and field study. The sole factor was government pressure. An organization is bound by the regulatory requirements of the country the organization is situated in. In Malaysia, the Security Commissions has been identified as the governing body that oversees the public listed companies specifically pertaining to fraud detection and prevention issues. The field study participants agreed that government pressure does exist in Malaysia. They believe that current Security Commission guidelines indirectly forces organizations to use

forensic accounting services. They stated that government insists the use of forensic accounting services in case of major fraud and government imposes numerous penalties for non-compliance in financial reporting. The four items are all reflective and listed in Table 6.6.

Table 6.6: Survey items related to external control factor

Construct	Item	Measure	Instrument Reference	Source Reference
Government Pressure	GVP1	Government regulations place an increased responsibility on my company to detect and prevent fraud.	6.20	Christensen, Byington, and Blalock 2005; Field Study
	GVP2	Government will impose penalties on officers from my company who certify financial statements and disclosures that they know are false.	6.21	Viton (2003); Field Study
	GVP3	Regulatory authorities' guidelines indirectly require my company to use forensic accounting services.	6.22	Hofmeyer (2005); Field Study
	GVP4	Government will insist that my company uses forensic accounting services in the event of a major fraud.	6.23	Field Study

6.3.2.6 Threat Perception Factors

Threat perception factors could identify organizations that perceive the costs of fraud are severe and organizations that perceive they may be susceptible to fraud. The severity of fraud to the organization is measured with six items that highlight the serious repercussions of fraud. The literature review and field study consolidated the development of the six items. Perceived susceptibility is measured by four items. The items were also developed through both literature review and field study. These items measured the extent the company perceives it will be a victim of fraud. All the items for perceived severity and perceived susceptibility are reflective. The items measured by each construct are listed in the Table 6.7 below.

Table 6.7: Survey items related to threat perception factors

Construct	Item	Measure	Instrument Reference	Source Reference
Perceived Severity of Fraud	SEV1	If my company is a victim of fraud, the financial loss will most likely be serious.	5.1.1	Wang (2005); Bierstaker, Brody, and Pacini (2006); Adams et al. (2006); Field Study
	SEV2	If my company is a victim of fraud, the effect on company image will most likely be serious.	5.1.2	Wang (2005); Zahra, Priem, and Rasheed (2007); Lister (2007); Field Study
	SEV3	If my company is a victim of fraud, the effect on employees' morale will most likely be serious.	5.1.3	Wang (2005); Peterson and Zikmund (2004); Field Study
	SEV4	If my company is a victim of fraud, the effect on the efficiency and productivity of my company will most likely be serious.	5.1.4	Wang (2005); Glover and Aono (1995); Field Study
	SEV5	If my company is a victim of fraud, the effect on customer good will and future business will most likely be serious.	5.1.5	Wang (2005); Peterson and Zikmund (2004); Field Study
	SEV6	If my company is a victim of fraud, the cost of investigation and prosecution will most likely be high.	5.1.6	Wang (2005); Peterson and Zikmund (2004); Field Study
Perceived Susceptibility to Fraud	SUS1	My company often worries about being a victim of fraud.	5.2	Doukas, Locallo, and Li (2004); Field Study
	SUS2	My company's concerns about being a victim of fraud interfere with the daily operation of the company.	5.3	Doukas, Locallo, and Li (2004)
	SUS3	My company's probability of being victim of fraud is very small.	5.4	Lajunen and Rasanen (2004); Field Study
	SUS4	Compared to the average company, my company's risk of fraud is higher.	5.5	Dijk et al. (2003)

6.3.2.7 Behavioral Intention

The dependent construct for this study is intention. The predominant research question is to identify the factors that influence the behavioral intention to use forensic accounting services for fraud detection and prevention by large Malaysian companies. Four items that have been adapted from previous studies measure the dependent construct. All four items listed in Table 6.8.

Table 6.8: Survey items related to behavioral intention

Construct	Item	Measure	Instrument Reference	Source Reference
Behavioral Intention to Use Forensic Accounting Services	BI1	My company is willing to use forensic accounting services for the detection and prevention of fraud.	7.1	Lu, C. Hsu, and H. Hsu (2005)
	BI2	My company would prefer to use forensic accounting services for the detection and prevention of fraud in future.	7.2	Agarwal and Prasad (2000)
	BI3	My company would use forensic accounting services for the detection and prevention of fraud whenever possible.	7.3	Agarwal and Prasad (2000)
	BI4	Given a choice, my company would prefer not to use forensic accounting services for any fraud detection and prevention.	7.4	Agarwal and Prasad (2000)

6.4 Summary

This chapter described the formation of twenty hypotheses derived from the conceptual model finalized in Chapter 5. The justification for each hypothesis was presented in detail. Then, a survey instrument based on the twenty constructs identified in the conceptual model was developed. The items were thoroughly referenced from both relevant literature and field study data. The final product is a demographic section followed by a 75 item six point Likert survey that encompasses a minimum of three items for each construct. The next chapter will explain the operationalization of the pilot study. In addition, the results of preliminary data analysis of the national survey will be presented.

CHAPTER 7

PILOT TEST AND PRELIMINARY ANALYSIS OF SURVEY

7.1 Introduction

The previous chapter presented the hypotheses for this study and examined the development of a questionnaire. The developed instrument is utilized for a pilot study on 30 CFO's from large Malaysian companies. The administration of the national survey utilizes the refined instrument based on the pilot study results. Two methods of data collection, the mail and web survey are detailed. The estimation of non-response bias to ensure the sample is representative of the population is also discussed. The results from the first part of the survey instrument, the sample demographics comprising the industry type, turnover, number of employees, organizational type, and utilization of forensic accounting services is profiled to gain a clear picture of the sample.

7.2 Empirical Pilot Study

This study applied the mixed method research design to examine the factors that influence the behavioral intention to use forensic accounting services by large Malaysian companies. The literature review and qualitative field study described in previous chapters yielded a comprehensive conceptual model encompassing seven factors and eighteen constructs. The questionnaire development based on an extensive literature review resulted in a seven-section survey. Section 1 takes account of demographic particulars whilst the remaining six sections consist of 75 six-point Likert scale items to measure the eighteen constructs. Each construct was ascribed with a minimum of three items.

The next step is the pilot study or pre testing of the questionnaire. The focal objective of this phase is to assess the comprehensibility, flow, and timing of the survey (De Vaus 2002). The layout and design of the survey as well as its ability to hold the participants' interest will also be evaluated (De Vaus 2002). Dillman (2000) contends that this stage could also test the sensitivity of the rating scales. This is to ensure that a good cross-section of responses could be obtained. Furthermore, Cohen, Manion, and Morrison (2000) emphasized that the integral function of the pilot study is to review the wordings of the survey items.

Based on these justifications, 30 CFO's from large Malaysian companies were selected by convenience sampling method. The CFO's were initially approached via e-mail or phone. They were informed on the aim and background of the research. In addition, the emphasis was on a voluntary nature of participation. All the CFO's agreed to participate in the research. An online version of the survey was created on the web-based research tool 'Survey Monkey' and the URL link was http://www.surveymonkey.com/s.aspx?-sm=IfAUO 2Ix5e4QfuXs 89rooQ_3d_3d. The CFO's were sent an e-mail linked to this website. They were required to answer online. Twenty-eight of the CFO's completed the online survey. However, two of the CFO's requested to answer on paper. Later, they scanned and sent the completed survey through e-mail.

The demographics of the pilot study samples are detailed in Table 7.1 according to industry type, turnover, number of employees, company type, and utilization of forensic accounting services. The data for industry type, turnover, and number of employees are almost equally distributed. However, majority of the company type that is 73.3% are private limited whilst the rest are public listed companies. This is in congruence with the list of companies provided by Inland Revenue Board Malaysia (IRBM) whereby the population of private limited companies in Malaysia is much larger compared to public listed companies. The number of companies utilizing forensic accounting services is only three and this is equivalent to 10% of the sample. This data is also representative of the population whereby an estimate of 10 to 20% of companies in Malaysia have utilized forensic accounting services in fraud detection and prevention (PricewaterhouseCoopers 2005; PricewaterhouseCoopers 2006a).

Table 7.1: Demographics of pilot study

Industry Type	**No. of Companies**	**%**
Trading/Service	4	13.3
Industrial Products	5	16.7
Properties	2	6.7
Finance	4	13.3
Construction	2	6.7
Technology	3	10.0
Plantation	3	10.0
Others	7	23.3
Total	30	100.0
Turnover	**No. of Companies**	**%**
RM5 million - RM25 million	3	10.0
RM25 million - RM50 million	3	10.0
RM50 million - RM100 million	5	16.7
RM100 million - RM250 million	4	13.3
RM250 million - RM500 million	6	20.0
RM500 million - RM1 billion	2	6.7
Greater than RM1 billion	7	23.3
Total	30	100.0
Number of Employees	**No. of Companies**	**%**
Less than 50	1	3.3
51 – 150	7	23.3
151 – 250	0	0
251 – 500	7	23.3
501 – 750	0	0
751 - 1,000	3	10.0
1,001 - 5,000	7	23.3
5,001 - 10,000	2	6.7
Greater than 10,000	3	10.0
Total	30	100.0
Company Type	**No. of Companies**	**%**
Public Listed Company	8	26.7
Private Limited Company	22	73.3
Total	30	100.0
Utilization of FAS	**No. of Companies**	**%**
Using FAS	3	10.0
Not Using FAS	27	90.0
Total	30	100.0

Note: FAS is forensic accounting services

All the participants completed the survey and there were no missing data. In addition, the participants gave a wide cross-section of responses. This assured the sensitivity of the Likert rating scales (Dillman 2000). The ‘Survey Monkey” records

information on the time taken for each participant to complete the survey. Overall, the respondents took an average of 30 minutes to complete the survey. This confirmed the researchers estimate of the time requirement. Surveys that are perceived to be complex and time consuming would lead to poor response rate (Thong and Yap 1995). The short time taken to complete the survey confirms the comprehensibility of the questions and the ability of the survey to hold the participants interest. In addition, the time estimate gave useful information that could be provided to the national survey participants.

The participants were encouraged to give feedback and comments on the comprehensibility and complexity of the items and instructions in the survey. Seventeen of the respondents gave positive feedback that they could easily understand the survey. None of them commented on encountering any problem in understanding the instructions and wordings of individual items. However, four participants mentioned that there were too many questions to answer. Nevertheless, this problem could not be avoided due to the complexity of the exploratory research model. The accurate conceptualization of the eighteen constructs does require a large number of items.

Data analysis also revealed that 23.3% of the respondents could not categorize their type of industry and had chosen 'others' as industry type response. Categorization of industry type for the pilot study was based on type of industry listed in Kuala Lumpur Stock Exchange. The data shows that the responses were not representative of the wide array of types of industry in Malaysia. Therefore, a minor adjustment was made to the response whereby four more types of industry were included. The additional types of industries were chosen from the KPMG (2005) fraud survey report. A slight modification was made to tweak one of the items based on feedback from one of the respondents. The item 2.12 in section 2 "Government emphasis on forensic accounting services gives my company information on the role of forensic accounting services for fraud detection and prevention" was modified to "Regulatory authorities' emphasis on forensic accounting services gives my company information on the role of forensic accounting services for fraud detection and prevention". The final modified questionnaire is attached as Appendix 4.

7.3 The Administration of National Survey

7.3.1 Sample

The refined survey instrument was utilized in a national survey on large Malaysian companies. The mail survey is considered as one of the most cost-effective data collection method in large-scale quantitative research (Sekaran 2003). In addition, this method gives participants the security of confidentially and anonymity (Gosselin 1997). This method also aligns with the aim of this phase of the research, which focuses on objective views rather than subjective feelings. Moreover, unlike phone interviews participants do not feel pressured to take action and answer immediately (Gosselin 1997). Large companies were defined as companies with sales turnover of more than RM5 million for the primary agriculture and service sectors and more than RM25 million for manufacturing and manufacturing related sectors (National SME Development Council 2005). A list comprising 9,642 large Malaysian companies was generated with data obtained from the Inland Revenue Board of Malaysia (IRBM).

The IRBM list had the mailing address of all 9,642 companies. In addition, 191 of the companies had direct e-mail addresses of the company's CFO. This additional information provided the impetus for a second data collection method. Since the online survey and web link was already created for the pilot study, the same web survey could be sent to the CFO's. The rationale is to maximize sample size with minimal cost requirement. The demographics of the sampling frame are detailed in Table 7.2.

Table 7.2: Web survey demographics

Organizational Type	Web Survey
Public Listed Company	34
Non-Public Listed Company	157
Total	191

The remaining 9,451 companies were then profiled to gain an understanding of the population and assist stratification. Table 7.3 shows how the sampling frame was stratified.

Table 7.3: Mail survey demographics

Organizational Type	Number of Companies	% of Population	Stratified Sample Size
Public Listed Company	840	8.9	168
Non-Public Listed Company	8,611	91.1	1,722
Total	9,451	100.0	1,890

Therefore, the total sampling frame is 2,081. The data for the sampling frame is detailed in table 7.4.

Table 7.4: Web survey and mail survey demographics

Organizational Type	Web Survey	Mail Survey	Total Sample Size
Public Listed Company	34	168	202
Non-Public Listed Company	157	1,722	1,879
Total	191	1,890	2,081

To maximize response rate, an accompanying letter was attached to the survey (Appendix 3). This letter is from the Deputy Director General of Inland Revenue Board Malaysia (IRBM) stating that the researcher is an employee of IRBM currently pursuing his PhD studies. The letter requests the kind assistance of the companies in completing the survey. The mail survey was sent to all 1,890 companies. The initial mail was sent on 17 September 2008 followed by a reminder letter (Appendix 5) after three weeks. The intervals are to allow for lead-time as suggested by Evans et al. (1996). The mailing pattern is outlined in Table 7.5.

Table 7.5: Mail survey mailing pattern

Mailing Pattern	Mailing Date
Initial Mailing	17 September 2008
Reminder	8 October 2008

The web survey commenced at the same time as the mail survey. After two weeks interval, a reminder was sent to all the companies. The shorter intervals compared to mail survey is because the web survey requires less lead-time (Jabbar 2009). The details of the e-mail patterns are provided in Table 7.6.

Table 7.6: Web Survey mailing pattern

Mailing Pattern	Mailing Date
Initial Mailing	17 September 2008
Reminder	1 October 2008

7.3.2 Response Rate

Altogether, 1,890 mail surveys and 191 web surveys were sent out to company CFO's. The description for the responses are portrayed in Table 7.7 total of 306 mail surveys were returned. After careful screening of data, nine of these surveys were found to be not usable. Hence, the response rate for the mail survey was calculated to be 15.8%. The web survey only had 8 replies. All the web survey responses were complete. This maybe because the user friendly web survey is designed such a way that it will not proceed to the next page until the preceding page is complete. The response rate for mail survey was a low 4.2%. The overall response rate for this study taking into account both method is 14.7%.

Table 7.7: Sample frame and response rate

	Number of Companies		
	Mail Survey	Web Survey	Total
Gross Sample Frame	1890	191	2081
(-) Unusable Responses	9	0	9
Net Sample Frame	1881	191	2072
Usable Responses	297	8	305
Usable Response Rate	15.8%	4.2%	14.7%

7.3.3 Demographics

The demographics of the respondents were profiled to gain a clear picture of the sample. The first section of the survey provided the information on industry type, organization turnover, number of employee, organizational type, and utilization of forensic accounting services.

7.3.3.1 Industry Type

Table 7.8 recapitulates the data on the respondents' type of industry. The data shows that a good cross section of industry type is represented by the sample. Financial services industry has the highest percentage of 16.1% followed by trading/services which comprises of 12.8% of the companies. Construction and engineering, and manufacturing each has a representation of 10.8%. Altogether, these four types of industry make up 50.5% of the population. The rest of the industry types are between 2 to 6% each except for mining which has only two samples.

Table 7.8: Survey respondents by industry type

Industry Type	Number of Companies	Percentage (%)
Construction and Engineering	33	10.8
Consumer Products	15	4.9
Electronics / Technology	18	5.9
Energy / Petroleum	13	4.3
Financial Services	49	16.1
Hospitality	10	3.3
Industrial Products	13	4.3
Management / Holding Company	11	3.6
Manufacturing	33	10.8
Mining	2	0.7
Plantation	9	3.0
Publishing / Printing	9	3.0
Real Estate	13	4.3
Transport	12	3.9
Trading / Services	39	12.8
Utilities	6	2.0
Others	20	6.6
Total	305	100.0

7.3.3.2 Turnover

Majority of the companies portrayed in Table 7.9 have a turnover between RM25 million to RM500 million. This makes up 72.8% of the sample population. The highest representation are from RM25 million to RM50 million and RM100 to RM250 million whereby both correspond to 21% of the sample each. The lowest samples are from RM500 million to RM1 billion category which has only 21 respondents. The results indicate that a good range of companies based on turnover contributed to this study.

Table 7.9: Survey respondents by turnover of company

Turnover	Number of Companies	Percentage (%)
RM5 million - RM25 million	32	10.5
RM25 million - RM50 million	64	21.0
RM50 million - RM100 million	46	15.1
RM100 million - RM250 million	64	21.0
RM250 million - RM500 million	48	15.7
RM500 million - RM1 billion	21	6.9
Greater than RM1 billion	30	9.8
Total	305	100.0

7.3.3.3 Number of Employees

The data for number of employees tabulated in table 7.10 also indicates a satisfactory range. The highest are from 51 to 150 employees (22.6%) followed by 251 to 500 employees (19.3%). Only ten companies with the large number of employees of above 5,001 responded.

Table 7.10: Survey respondents by number of employees

Number of Employees	Frequency	Percentage (%)
Less than 50	41	13.5
51 – 150	69	22.6
151 – 250	44	14.4
251 – 500	59	19.3
501 – 750	24	7.9
751 - 1,000	16	5.2
1,001 - 5,000	42	13.8
5,001 - 10,000	4	1.3
Greater than 10,000	6	2.0
Total	305	100.0

7.3.3.4 Organizational Type

The majority of companies depicted in Table 7.11, are private limited company (65%) whilst only 37.4% were public listed company. However, five companies are in the 'others' category. These are public companies, which are not listed in Kuala Lumpur Stock Exchange and therefore considered as private companies.

Table 7.11: Survey respondents by organizational type

Company Type	Number of Companies	Percentage (%)
Public Listed Company	114	37.4
Private Limited Company	186	61.0
Other	5	1.6
Total	305	100.0

7.3.3.5 Utilization of Forensic Accounting Services

The percentage of companies using forensic accounting services was as expected very low. As portrayed in table 7.12, only 12.5% of the companies have utilized forensic accounting services. Hence, this result highlights the low usage of forensic accounting services amongst large Malaysian companies and reemphasizes the importance of this research.

Table 7.12: Survey respondents by utilization of forensic accounting services (FAS)

Utilization of FAS	Number of Companies	Percentage (%)
Using FAS	38	12.5
Not Using FAS	267	87.5
Total	305	100.0

Cross tabulation of data was conducted to further investigate the type of industry and company type that have utilized forensic accounting services. Table 7.13 on industry type shows that majority of the companies (39.5%) that have utilized forensic accounting services were from financial services.

Table 7.13: Utilization of forensic accounting services (FAS) against industry type

Industry Type	Number of Companies Using FAS	Percentage (%)
Construction and Engineering	3	7.9
Consumer Products	1	2.6
Electronics / Technology	1	2.6
Energy / Petroleum	2	5.3
Financial Services	15	39.5
Hospitality	0	0.0
Industrial Products	1	2.6
Management / Holding Company	1	2.6
Manufacturing	1	2.6
Mining	0	0.0
Plantation	1	2.6
Publishing / Printing	1	2.6
Real Estate	0	0.0
Transport	1	2.6
Trading / Services	5	13.2
Utilities	1	2.6
Others	4	10.5
Total	38	100.0

Cross tabulation of company type and utilization of forensic accounting services depicted in Table 7.14 evidences that 55.3% of the companies that utilized forensic accounting services were from public listed companies.

Table 7.14: Utilization of forensic accounting services against organizational type

Company Type	Using Forensic Accounting Services	
	Number of Companies	Percentage (%)
Public Listed Company	21	55.3
Private Limited Company	15	39.5
Other	2	5.2
Total	38	100.0

Types of forensic accounting services utilized by the respondents were also analyzed. The Table 7.15 shows that the most popular type of forensic accounting services is 'assessing and strengthening internal control system' whereby this service was employed by 71.1% of the companies. The next popular type of service was 'developing regulatory compliance strategies' utilized by 44.7% of companies. This is followed by 'fraud investigation' and "fraud prevention system" each utilized by 42.1% of the companies. The least employed service is the 'litigation support and expert witness' whereby only 13.2% of the companies used this service.

Table 7.15: Type of forensic accounting services utilized by companies

Types of Forensic Accounting Services	Number of Companies	Percentage (%)
Fraud investigation	16	42.1
Litigation support & expert witness	5	13.2
Computer forensics	11	28.9
Asset tracing & recovery	11	28.9
Assessing & strengthening internal control system	27	71.1
Damage or loss quantification	8	21.1
Fraud risk management	13	34.2
Fraud prevention system	16	42.1
Develop regulatory compliance strategies	17	44.7
Other	1	2.6

7.4 Non Response Bias

The mail survey response for this study was a low 15.8%. Harbaugh (2002, 70) expressed concern that the "response rate for traditional mail surveys have continued to decline to a point where the average is below 20%". However, while the mail survey response rate is low, it is within the normal mail response rate for Malaysian studies, which is between 10% to 20% (Ramayah, Yan, and Sulaiman 2005). For example, a study by Sohail and Sohal (2003) on the use of logistic services in Malaysian companies had a 16% response rate. Similarly, the response rate for an electronic commerce diffusion research in Malaysia yielded a 13.4% response rate (Ang, Tahar, and Murat 2003). Furthermore, a study on the implementation process and performance of business process reengineering (BPR) in Malaysia had 14.7% response rate (Khong and Richardson 2003). In addition, Jabbar (2009) who studied income tax non-compliance on SME's in Malaysia obtained a 15.7% response. KPMG (2009) sent 1125 questionnaires for its 2009 fraud survey and received 175 responses, representing 15.5% of the sampling frame. KPMG remarked that this aligns with their regional response rate benchmark of 11% - 20%. All these studies, which utilized the mail out survey method similar to the present study, considered the response rate of 10-20% as acceptable in Malaysia. Therefore, the low response rate of 15.8% is typical and justified in Malaysian studies.

The low response rate could be explained by survey fatigue (Klassen and Jacobs 2001) because the respondents might have had to answer too many survey requests. In addition, the length of this survey of 75 items might also have contributed to the low response rate (Frohlich 2002).The respondents in this study are CFO's of companies. As one of the key personnel in the company, they are less inclined to respond to mailed survey compared to the general population (Hunt and Chonko 1987). This is because the role of CFO's as financial professionals in current globalized economic situation entails unprecedented pressures and expectations (Lowth 2009).

Hence, with their busy workloads they would not have the time or the inclination to complete mail surveys from researchers. However, (Hunt and Chonko 1987) stressed that the mail survey is still the most cost-effective data collection method from key

executives in an organization. Nevertheless, the low response rate warrants further investigation. In a quantitative survey method, the inference on the population is made from the sample. Therefore, if the sample is biased, the inference could be wrong. Hence, the non-response bias method is utilized to ensure that the sample represents the targeted population (Armstrong and Overton 1977).

However, as pointed by Zou, Andrus, and Norvell (1997) it was not possible to compare responding and non responding companies due to lack of corresponding data from the non-responding companies. Therefore, Armstrong and Overton (1977) suggested the extrapolation method to estimate non-response bias in mail surveys. This method is "based on the assumption that subjects who respond less readily are more like non-respondents" (Armstrong and Overton 1977, 397). In this study, 'less readily' would be defined as participants who answered the survey later.

Since a reminder letter was sent after three weeks interval, the type of extrapolation chosen for this study is comparison between early and late respondents. The participants who responded only after the reminder was sent are assumed to have responded due to increased stimulus. Therefore, they are regarded as similar to non-respondents. One of the methods of comparison between the two groups would be to estimate the differences on key constructs. First, the Kolmogrov-Smirnov test was applied to the data to check if the data is normally distributed or not. As suggested by Field (2005), the result of this test informs the decision on the subsequent statistical application. This test compares the scores in the sample to a normally distributed set of scores with the same mean and standard deviation. The result of the normality test is depicted in Table 7.16.

Table 7.16: Kolmogrov-Smirnov test of normality

Constructs	t - Value	Significance (1-tailed)
Professional Bodies	0.125	0.000*
Accounting Firms	0.125	0.000*
Media	0.118	0.000*
Government	0.111	0.000*
Awareness of Forensic Accounting Services	0.130	0.000*
Perceived Benefits of Forensic Accounting Services	0.062	0.004*
Perceived Risks of Forensic Accounting Services	0.086	0.000*
Attitude towards Forensic Accounting Services	0.172	0.000*
Stakeholder Pressure	0.089	0.000*
Perceived Severity of Fraud	0.090	0.000*
Perceived Susceptibility to Fraud	0.070	0.000*
Organizational Ethical Climate	0.058	0.008*
Strength Of Internal Control System	0.093	0.000*
Financial Cost	0.129	0.000*
Government Pressure	0.093	0.000*
Behavioral Intention to Use Forensic Accounting Services	0.103	0.000*

Notes: * $p < 0.05$

The result indicate that the test for all the constructs are significant at $p<0.05$. It shows that the sample for all the constructs are not distributed normally and this necessitates a non-parametric test. Hence, the non-response bias was analyzed using the Mann-Whitney test. The independent sample t-test on means of the constructs as suggested by Zou, Andrus, and Norvell (1997) is applied. The result of the Mann-Whitney test is recapitulated in Table 7.17. The results clearly indicate that there are no significant differences between respondents and non-respondents. Therefore, the conclusion is that non-response bias is not a detriment in this research.

Table 7.17: Non response Mann Whitney test results

Construct	Z - Value	Significance (1-tailed)
Professional Bodies	-0.692	0.245
Accounting Firms	-0.692	0.245
Media	-0.778	0.218
Government	-0.357	0.360
Awareness of Forensic Accounting Services	-0.725	0.234
Perceived Benefits of Forensic Accounting Services	-1.090	0.138
Perceived Risks of Forensic Accounting Services	-0.735	0.231
Attitude towards Forensic Accounting Services	-0.761	0.223
Stakeholder Pressure	-1.540	0.062
Perceived Severity of Fraud	-0.594	0.276
Perceived Susceptibility to Fraud	-0.914	0.180
Organizational Ethical Climate	-0.095	0.462
Strength Of Internal Control System	-0.356	0.361
Financial Cost	-0.323	0.373
Government Pressure	-0.258	0.398
Behavioral Intention to Use Forensic Accounting Services	-0.583	0.280

The response rate for the web survey was a very low 4.2%. However, Jabbar (2009) in his Malaysian tax non-compliance study applied a similar web survey method and obtained an even lower 2% response rate. Furthermore, Weible and Wallace (1998) have documented the significantly low response rate for web survey compared to mail survey. The plausible reasons for the low response rate such suggested for mail survey can also be applied here. These include, CFO's as key organizational personnel are too busy to attend to surveys (Hunt and Chonko 1987), length of survey (Frohlich 2002) and survey fatigue (Klassen and Jacobs 2001).

In addition, there are distinct problems encountered in web surveys. For example, most large companies' servers have mail filtering systems. Therefore, the web survey e-mail, which has the 'Survey Monkey' hyperlink attached to it, is most likely rejected at the server itself as spam mail. In addition, CFO's d not have the time to go through all their mail and might just delete what they think are impertinent mails without even opening the mail. Furthermore, in most companies, company secretaries handle e-mails. They might not want to bother the CFO's with surveys by doctoral students. Therefore, CFO's who might be interested in responding are totally unaware of the survey.

7.5 Summary

This chapter detailed the implementation of the pilot study on thirty CFO's from large Malaysian companies. The pilot study confirmed the flow, clarity, and comprehensibility of the survey instrument. It also provided the time requirement for the completion of the survey. In addition, the pilot study assured the sensitivity of the Likert rating scales. However, the feedback from the respondents entailed some minor adjustments on the wordings of an item and categorization of type of industry. The refined instrument was utilized on a sample of 2,081 large Malaysian companies. The data collection method was mail and web survey. Although the total response rate for the mail and web survey was low at 14.7%, this figure was comparable with other Malaysian studies. Non-response bias was estimated and ruled out.

The final portion of this chapter gave a glimpse of the data that was obtained from the national survey. The results of the first part of the survey on sample demographics were summarized. The profile of the 305 sample based on industry type, turnover, number of employees, organizational type and utilization of forensic accounting services was presented.

The ensuing chapter will provide the information and justification on the selection of data analysis method. PLS, a SEM based application is the preferred quantitative technique. The assessment of the measurement model as well as the structural model will be described. Finally, the result of hypotheses testing will be examined and detailed.

CHAPTER 8

DATA ANALYSIS USING PARTIAL LEAST SQUARE (PLS)

8.1 Introduction

Chapter 7 summarized the preliminary section of the national survey. Sample demographics were detailed to provide a clear profile of the 305 respondents. This chapter continues with the analyses of quantitative data. First, the utilization of Partial Least Square (PLS) based Structural Equation Modeling (SEM) for the assessment of the measurement and structural model is presented. PLS tests the convergent validity and discriminant validity of the reflective items in the measurement model. Convergent validity has to be achieved to ensure that the items in each construct are highly correlated and reliable. Establishing discriminant validity is important to ensure that the eleven reflective constructs are different from each other. In addition, indicator weight, the relative importance of the formative items towards the formation of the related latent construct is appraised.

Next, multicollinearity of the formative items is tested to ensure that each item distinctly contributes towards the latent variable. The assessment of the structural model commences once the measurement model has been evaluated and adjusted.

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* Part of this chapter has been presented at the following conferences:

Muthusamy, G. 2009. Behavioral intention to use forensic accounting services for the detection and prevention of fraud by large Malaysian companies. In *Curtin Business School Doctoral Students' Colloquium 2009*, Curtin University of Technology, Perth, 1-2 October.

Muthusamy, G., M. Quaddus, and R, Evans. 2010. Organizational intention to use forensic accounting services for fraud detection and prevention of fraud by large Malaysian companies. In *Oxford Business & Economics Conference*, St. Hugh's College, Oxford University, Oxford, U.K., 28-30 June.

Muthusamy, G., M. Quaddus, and R, Evans. 2010. The Theory of Planned Behaviour and organisational intention to use forensic accounting services. In *24th Annual Australian and New Zealand Academy of Management Conference*, University of South Australia, Adelaide, 8-10 December.

The explanatory power of the model is determined by computing the R^2 of the endogenous constructs. In addition, path coefficient and t-values are calculated to determine the direction and significance of the hypothesized relationship. This chapter concludes by describing the results of the hypotheses testing.

8.2 Selection of Data Analysis Method

8.2.1 Structural Equation Modeling (SEM) and Partial Least Square (PLS)

SEM was chosen as the statistical tool best suited for this research. SEM is a second-generation data analysis technique that allows the simultaneous assessment of the measurement properties and the structural model. According to Barclay, Higgins, and Thompson (1995, 288) the main advantages of SEM are "to:

- permit the assessment of measurement properties of constructs within different theoretical contexts in which they are embedded
- deal explicitly with measurement error
- provide other benefits to researchers not available with first generation techniques such as multiple regressions, principal component analysis and cluster analysis"

Barclay, Higgins, and Thompson (1995) believed first generation statistical analysis restricts both creativity and depth of insights that can be drawn from the results. However, the improved SEM method enables "researchers to answer a set of interrelated research questions in a single, systematic, and comprehensive analysis by modeling the relationships among multiple independent and dependent constructs simultaneously" (Gefen, Straub, and Boudreau 2000, 71). Moreover, SEM has been successfully applied in numerous behavioral intention conceptual models in the past (Santosa, Wei, and Chan 2005; Moores and Chang 2006; Quaddus and Hofmeyer 2007; Jackson 2009; Kim and Han 2009).

There are a number of SEM based applications available for researchers and the one selected specifically for this study is PLS Graph version 3.0. The Partial Least

Square (PLS) is a second-generation regression model that integrates factor analysis and linear regressions. It is suitable in confirmatory factor analysis and simultaneous testing of multiple hypotheses.

The major advantage of PLS is that it makes minimal distribution assumptions. Therefore, test for normality such as skewness, kurtosis, and Kolmogorov-Smirnov test need not be done. Moreover, PLS is suitable if the sample is small. Chin, Marcolin, and Newsted (2003) had used 270 survey responses whilst Barclay, Higgins, and Thompson (1995) had 250 survey responses in their PLS analysis. In addition, this study would include both formative and reflective items. Therefore, PLS which can be used for both reflective and formative indicators unlike other SEM based applications such as LISREL is the best option for data analysis (Barclay, Higgins, and Thompson 1995; Chin 1995; Chin and Gopal 1995; Fornell and Bookstein 1982).

8.2.2 Sample Size

The sample size requirement for PLS data analysis was detailed by Chin, Marcolin, and Newsted (1996). The recommended rule of thumb is that the sample size has to be equal to or larger than the following:

- ten times the scale with the largest number of formative indicator or
- ten times the largest number of structural paths directed at a particular construct in the structural model

If this rule is applied for the present study, the minimum number of sample required is 80. Based on this specification, the sample size of 305 suggests that it is more than sufficient to satisfy a robust PLS model.

8.2.3 Data Examination

Alreck and Settle (1995) recommended data cleanup before commencing data analysis. This process involves the review of the data line by line to check for any

errors due to missing or irrational data. The detailed scanning identified four records were incomplete. These four data were eliminated and the final 305 valid responses were utilized for data analysis.

The behavioral model consists of five endogenous constructs. These are, awareness of forensic accounting services, perceived risks of forensic accounting services, perceived benefits of forensic accounting services, attitude towards forensic accounting services, and behavioral intention to use forensic accounting services. The total numbers of item in the model were 75. Altogether, there were 56 reflective items measuring eleven constructs and nineteen formative items to measure the remaining five constructs. Rahim, Antonioni, and Psenicka (2001), and Kline (1998) recommended a minimum of two indicators per construct for SEM. This criterion was followed and a minimum of three items were allocated for each construct.

8.3 Model Assessment

8.3.1 Assessment of the Measurement model

The strength of the measurement properties were assessed by examining the convergent validity and discriminant validity of the 56 reflective items. The formative items do not measure the same underlying dimension. Therefore, indicator weight, which measures the relative importance of the formative items in the formation of the construct, is utilized.

8.3.1.1 Convergent Validity

As suggested by Fornell and Larcker (1981), convergent validity was determined by calculating item reliability, internal consistency, and average variance extracted (AVE). Convergent validity measures the correlations of the items in a single construct. The higher the convergent validity the more strongly correlated are the items in each construct. Therefore, the three steps to determine convergent validity were undertaken.

8.3.1.1.1 Item Reliability

Item reliability assesses the loadings for each individual item. Table 8.1 presents the detailed item loadings. The loadings indicate the correlation of the items with their respective constructs. Therefore, maintaining low loading items would decrease the correlation between the items in the construct (Nunnally 1978). The reason for the low loadings is possibly due to the use of inappropriate wordings (Hulland 1999). Item reliability also measures the level of random error for each construct. The lower the item loading, the higher is the level of random error. Therefore, this procedure could identify and eliminate the items in a particular construct that could increase the construct's level of random error (Fornell and Lacker 1981).

Table 8.1: Item loading for reflective items

Construct	Item	Loading
Awareness of Forensic Accounting Services (AW)	AW1	0.8704
	AW2	0.9188
	AW3	0.9069
Perceived Risks of Forensic Accounting Services (PR)	PR1	0.7213
	PR2	0.6639
	PR3	0.7534
	PR4	0.8224
	PR5	0.7882
Perceived Benefits of Forensic Accounting Services (PBF)	PBF1	0.7368
	PBF3	0.6833
	PBF4	0.6742
	PBF6	0.7231
	PBF7	0.7425
	PBF8	0.8490
Attitude towards Forensic Accounting Services (ATT)	ATT1	0.8928
	ATT2	0.9318
	ATT3	0.9131
Financial Cost (FC)	FC1	0.7614
	FC2	0.7838
	FC3	0.9010
Organizational Ethical Climate (OEC)	OEC3	0.8123
	OEC4	0.7793
	OEC6	0.8386

Construct	Item	Loading
Strength of Internal Control Systems (SICS)	SICS1	0.7668
	SICS2	0.7631
	SICS3	0.8378
	SICS4	0.8629
	SICS5	0.7930
	SICS6	0.8855
	SICS7	0.6043
	SICS8	0.8488
	SICS9	0.7963
Government Pressure (GVP)	GVP1	0.6810
	GVP2	0.6294
	GVP3	0.8700
	GVP4	0.7972
Perceived Severity of Fraud(SEV)	SEV1	0.8485
	SEV2	0.8810
	SEV3	0.8520
	SEV4	0.7844
	SEV5	0.7840
Perceived Susceptibility to Fraud (SUS)	SUS1	0.8859
	SUS2	0.7842
	SUS4	0.7847
Behavioral Intention to Use Forensic Accounting Services (BI)	BI1	0.8434
	BI2	0.8978
	BI3	0.8322
	BI4	0.6221

There are many rules of thumb suggested in the literature for the item loadings cut off point. Igbaria, Guimaraes, and David (1995) deemed 0.4 as an acceptable minimum loading. Hair et al. (1998) suggested that loadings above 0.3 as significant, above 0.4 as more significant and above 0.5 as very significant. Chin (1998) believes items loadings should be above 0.5. Carmines and Zeller (1979) maintained 0.7 as the reliability limit whilst Barclay, Higgins, and Thompson (1995) specified 0.707 as the minimum limit. However, Nunnally (1978) argued that in case of strong theoretical support, further reviews of the low loading items are warranted. This is

especially pertinent if the low loading items add to the explanatory power of the model.

Taking into account all the recommendations in the literature, and to maximize the measurement model's ability to fulfill the requirements of convergent validity, 0.6 was determined as the minimum value. Hence, after the first PLS run, eight items with loadings below 0.6 were discarded. The items eliminated are PBF2, PBF5, OEC1, OEC2, OEC5, OEC7, SEV6, and SUS3. Furthermore, the criterion suggested by Kline (1998) and Rahim, Antonioni, and Psenicka (2001) for a minimum of two items was maintained because even after item elimination, all the constructs had a minimum of three items. The refined measurement model was again tested and all loadings were found to be above the cut-off point of 0.6. The results of the item loading found the majority of the items loading above 0.707 whilst only seven items had a loading of 0.6 to 0.7.

8.3.1.1.2 Internal Consistency

Internal consistency is a second-generation procedure that measures reliability. It is proposed as an effective method to overcome the weaknesses of Cronbach Alpha, the first generation reliability measure. The total number of items (Hanlon 2001) does not influence internal consistency unlike Cronbach Alpha. Furthermore, Fornell and Larcker (1981) argue that the item loadings are acquired within the model unlike Cronbach's alpha. Nevertheless, the intention and interpretation of both measures of reliability are the same.

The minimum value for internal consistency is specified as 0.7 (Nunally 1978; Fornell and Larcker 1981; Barclay, Higgins, and Thompson 1995; Igbaria et al. 1997). The reason cited for low internal consistency by Hulland (1999) is multidimensionality of construct due to poor construct definition. To overcome this deficiency Hulland (1999) suggested either splitting the construct into new constructs or removing items to ensure unidimension is maintained. The formula for calculating internal consistency is provided in equation 1 as specified by Fornell and Larcker (1981).

Equation 1

$$\text{Internal Consistency} = \frac{(\Sigma\lambda_{yi})^2}{(\Sigma\lambda_{yi})^2 + \Sigma\lambda \text{Var}(\varepsilon_i)}$$

Where λ = component loading to an indicator, y = construct, i = item, $\text{Var}(\varepsilon_i) = 1 - \lambda_{yi}^2$

Internal consistency was obtained from PLS analysis for each construct and the results are displayed in Table 8.2. The data shows that all the constructs meet the criterion for a minimum value of 0.7. The lowest internal consistency was 0.835 for government pressure (GVP) whilst the highest was 0.940 for strength of internal control system (SICS). The high internal consistency values for all the constructs ensure the reliability of the measurement model.

Table 8.2: Internal consistency for reflective items

Construct	Internal Consistency
Awareness of Forensic Accounting Services(AW)	0.927
Perceived Risks of Forensic Accounting Services (PR)	0.866
Perceived Benefits of Forensic Accounting Services (PBF)	0.876
Attitude towards Forensic Accounting Services (ATT)	0.937
Financial Cost (FC)	0.858
Organizational Ethical Climate (OEC)	0.852
Strength of Internal Control Systems (SICS)	0.940
Government Pressure (GVP)	0.835
Perceived Severity of Fraud (SEV)	0.918
Perceived Susceptibility to Fraud (SUS)	0.860
Behavioral Intention to Use Forensic Accounting Services (BI)	0.879

8.3.1.1.3 Average Variance Extracted

The final criteria to satisfy convergent validity is the measure of average variance extracted (AVE). AVE is a measure that indicates the amount of variance in the item

that is explained by the construct (Fornell and Larcker 1981). Fornell and Larcker (1981) in Equation 2 explained the calculation of AVE.

Equation 2

$$\text{Average variance extracted (AVE)} = \frac{(\Sigma\lambda_{yi})^2}{\Sigma\lambda_{yi}^2 + \Sigma\lambda \text{Var}(\varepsilon_i)}$$

Where λ = component loading to an indicator, y = construct, i = item, $\text{Var}(\varepsilon_i) = 1 - \lambda_{yi}^2$

Fornell and Larcker (1981) and Nunnally (1978) specified the rule of thumb for the minimum value of AVE as 0.5. This value ensures adequate construct reliability to achieve convergent validity. Results of the statistical analysis in Table 8.3 show that all the AVE values are above 0.5. The largest value is 0.808 for awareness (AW) whilst the lowest is 0.543 for perceived benefits of forensic accounting services (PBF). Therefore, the measurement model satisfied all three necessary criterias and achieved convergent validity. Hence, these results clearly indicate that the items in each construct are highly correlated and reliable.

Table 8.3: Average variance extracted (AVE) for reflective items

Construct	Average Variance Extracted (AVE)
Awareness of Forensic Accounting Services(AW)	0.808
Perceived Risks of Forensic Accounting Services (PR)	0.565
Perceived Benefits of Forensic Accounting Services (PBF)	0.543
Attitude towards Forensic Accounting Services (ATT)	0.833
Financial Cost (FC)	0.669
Organizational Ethical Climate (OEC)	0.657
Strength of Internal Control Systems (SICS)	0.639
Government Pressure (GVP)	0.563
Perceived Severity of Fraud (SEV)	0..690
Perceived Susceptibility to Fraud (SUS)	0.672
Behavioral Intention to Use Forensic Accounting Services (BI)	0.649

8.3.1.2 Discriminant Validity

The next step in the assessment of the measurement properties is to test for discriminant validity. The discriminant validity of the reflective variables assesses the degree to which the constructs differ from each other. Barclay, Higgins, and Thompson (1995) recommend two analytical procedures for this assessment. These are average variance extracted (AVE) analysis and cross loading matrix evaluation.

8.3.1.2.1 Average Variance Extracted Analysis

The first criterion of discriminant validity is assessed by calculating the square root of average variance extracted (AVE). This value is then compared with inter construct correlation. To meet the discriminant validity criteria, the square roots of the AVE were calculated and represented in the main diagonal of Table 8.4. The off-diagonal elements represent the correlations among the latent variables. Barclay, Higgins, and Thompson (1995) specified that discriminant validity is achieved when the square root of the AVE of a construct is larger than its correlation with other constructs. Table 8.4 confirms that the discriminant validity was achieved.

Table 8.4: Correlation of latent variables and square roots of AVE

Construct	AW	PR	PBF	ATT	FC	OEC	SICS	GVP	SEV	SUS	BI
Awareness of Forensic Accounting Services(AW)	**0.899**										
Perceived Risks of Forensic Accounting Services (PR)	-0.171	**0.752**									
Perceived Benefits of Forensic Accounting Services (PBF)	0.386	-0.018	**0.737**								
Attitude towards Forensic Accounting Services (ATT)	0.398	-0.225	0.615	**0.913**							
Financial Cost (FC)	-0.272	0.478	-0.071	-0.213	**0.818**						
Organizational Ethical Climate (OEC)	0.039	-0.223	-0.006	0.136	-0.139	**0.811**					
Strength of Internal Control Systems (SICS)	0.184	-0.103	0.211	0.162	-0.126	0.065	**0.899**				
Government Pressure (GVP)	0.253	-0.041	0.312	0.304	-0.083	-0.141	0.207	**0.750**			
Perceived Severity of Fraud (SEV)	0.039	0.113	0.360	0.319	-0.010	-0.064	0.101	0.241	**0.831**		
Perceived Susceptibility to Fraud (SUS)	0.093	0.096	0.100	0.085	0.070	-0.234	0.010	0.344	0.347	**0.820**	
Behavioral Intention to Use Forensic Accounting Services (BI)	0.319	-0.214	0.345	0.504	-0.320	0.161	0.114	0.299	0.311	0.185	**0.806**

(The bold elements in the main diagonal are the square roots of AVE)

8.3.1.2.2 Cross Loading Matrix

The second discriminant validity criterion is achieved when loadings of an item within a construct is greater than its loading in any other construct. First, the latent variable scores for each item is calculated through PLS. Then, these scores are correlated with the original items. The correlation is done after the two types of data are copied into SPSS. Bivarate correlation using the non-parametric Spearman correlation was chosen because the data violates normal distribution as proven in Section 7.4. The results of the loading and cross loading correlations are depicted in Table 8.5. The table shows that all items are loaded higher on the construct they were measuring than on any other construct in the model. Therefore, the second criterion of discriminant validity was met. The implication is that all the reflective constructs in the measurement model are different from each other.

Table 8.5: Cross loading matrix

	AW	PBF	PR	ATT	FC	OEC	SICS	GVP	SEV	SUS	BI
AW1	**0.868**	0.366	-0.181	0.379	-0.218	0.055	0.195	0.170	0.075	0.031	0.254
AW2	**0.913**	0.381	-0.140	0.415	-0.179	0.033	0.194	0.179	0.048	0.065	0.299
AW3	**0.888**	0.336	-0.171	0.320	-0.181	0.016	0.198	0.276	0.039	0.151	0.297
PBF1	0.396	**0.727**	0.056	0.400	0.029	-0.102	0.169	0.292	0.257	0.136	0.316
PBF3	0.176	**0.684**	-0.097	0.484	-0.090	-0.022	0.123	0.327	0.357	0.211	0.329
PBF4	0.124	**0.664**	0.054	0.366	0.052	-0.112	0.049	0.185	0.293	0.022	0.194
PBF6	0.305	**0.713**	0.030	0.349	0.034	-0.004	0.149	0.195	0.231	0.023	0.182
PBF7	0.371	**0.731**	-0.034	0.385	-0.056	0.036	0.226	0.169	0.199	0.020	0.254
PBF8	0.365	**0.824**	-0.092	0.582	-0.052	0.075	0.232	0.254	0.253	0.050	0.321
PR1	-0.055	0.041	**0.714**	-0.129	0.387	-0.121	-0.035	-0.080	0.025	0.087	-0.117
PR2	-0.007	-0.022	**0.629**	-0.134	0.279	-0.077	0.017	0.000	0.087	0.041	-0.136
PR3	-0.157	-0.054	**0.727**	-0.221	0.416	-0.097	-0.074	-0.081	-0.030	-0.010	-0.222
PR4	-0.178	-0.037	**0.805**	-0.174	0.401	-0.221	-0.148	-0.008	0.136	0.113	-0.187
PR5	-0.201	-0.002	**0.757**	-0.183	0.365	-0.233	-0.131	0.088	0.242	0.201	-0.054

	AW	PBF	PR	ATT	FC	OEC	SICS	GVP	SEV	SUS	BI
ATT1	0.367	0.490	-0.203	**0.858**	-0.200	0.082	.0200	0.276	0.297	0.062	0.496
ATT2	0.365	0.545	-0.140	**0.892**	-0.151	0.077	0.169	0.272	0.336	0.079	0.446
ATT3	0.361	0.538	-0.224	**0.898**	-0.169	0.090	0.199	0.240	0.275	0.031	0.450
FC1	-0.145	0.074	0.249	-0.056	**0.648**	-0.064	0.061	-0.010	-0.046	0.023	-0.233
FC2	-0.329	-0.172	0.326	-0.277	**0.743**	-0.167	-0.286	-0.048	0.054	0.073	-0.190
FC3	-0.132	0.015	0.513	-0.173	**0.912**	-0.153	-0.092	-0.062	0.024	0.069	-0.183
OEC3	0.016	0.034	-0.154	0.137	-0.122	**0.809**	0.070	-0.114	0.050	-0.128	0.146
OEC4	-0.009	-0.076	-0.150	0.001	-0.111	**0.764**	0.001	-0.142	-0.086	-0.163	0.116
OEC6	0.074	-0.061	-0.176	0.099	-0.220	**0.838**	0.149	-0.078	-0.119	-0.270	0.166
SICS1	0.136	0.202	-0.018	0.189	-0.036	0.100	**0.773**	0.144	0.138	-0.013	0.107
SICS2	0.194	0.188	-0.054	0.144	-0.048	0.076	**0.758**	0.131	0.079	0.005	0.040
SICS3	0.145	0.173	-0.042	0.174	-0.112	0.002	**0.804**	0.133	0.066	-0.038	0.081
SICS4	0.206	0.216	-0.074	0.240	-0.168	0.050	**0.835**	0.159	0.109	-0.043	0.121
SICS5	0.157	0.142	-0.114	0.192	-0.090	0.023	**0.776**	0.185	0.101	-0.036	0.061
SICS6	0.142	0.190	-0.115	0.181	-0.114	0.105	**0.868**	0.162	0.101	0.013	0.153
SICS7	0.107	0.097	-0.181	0.108	-0.139	0.071	**0.609**	0.173	0.006	-0.060	0.028
SICS8	0.183	0.234	-0.088	0.160	-0.070	0.051	**0.836**	0.160	0.104	0.012	0.123
SICS9	0.163	0.203	-0.105	0.156	-0.122	0.094	**0.792**	0.177	0.063	-0.044	0.078
GVP1	0.158	0.217	0.016	0.133	0.036	-0.010	0.177	**0.652**	0.163	0.187	0.139
GVP2	0.207	0.247	-0.061	0.204	-0.064	0.168	0.254	**0.547**	0.158	0.161	0.234
GVP3	0.233	0.278	-0.016	0.286	-0.040	-0.202	0.122	**0.868**	0.250	0.310	0.304
GVP4	0.113	0.231	0.004	0.169	-0.031	-0.181	0.069	**0.802**	0.254	0.294	0.206
SEV1	0.110	0.294	0.096	0.345	-0.014	-0.056	0.098	0.231	**0.835**	0.282	0.342
SEV2	0.068	0.320	0.109	0.298	-0.004	0.010	0.129	0.177	**0.874**	0.229	0.321
SEV3	0.041	0.289	0.125	0.253	0.018	-0.102	0.110	0.272	**0.856**	0.328	0.294
SEV4	0.000	0.222	0.200	0.208	0.182	-0.039	0.102	0.252	**0.791**	0.327	0.228
SEV5	-0.014	0.290	0.111	0.206	0.078	-0.053	0.043	0.204	**0.795**	0.329	0.246

	AW	PBF	PR	ATT	FC	OEC	SICS	GVP	SEV	SUS	BI
SUS1	0.148	0.166	0.084	0.070	0.043	-0.134	0.066	0.276	0.319	**0.904**	0.168
SUS2	-0.025	0.082	0.140	-0.029	0.131	-0.221	-0.029	0.276	0.411	**0.796**	0.100
SUS4	0.058	0.015	0.075	0.016	0.059	-0.245	-0.108	0.311	0.185	**0.739**	0.080
BI1	0.381	0.275	-0.131	0.466	-0.200	0.137	0.166	0.306	0.210	0.149	**0.813**
BI2	0.305	0.398	-0.126	0.507	-0.162	0.070	0.151	0.310	0.330	0.194	**0.877**
BI3	0.205	0.346	-0.053	0.402	-0.134	0.041	0.158	0.286	0.359	0.201	**0.822**
BI4	0.140	0.109	-0.326	0.290	-0.344	0.360	0.013	0.047	0.107	-0.054	**0.618**

8.3.1.3 Indicator Weight for Formative Items

Formative items are not correlated and do not measure the same underlying dimension. Five constructs comprising of nineteen items in the measurement model are formative indicators. Therefore, indicator weight, which provides information on the relative importance of the formative items towards the formation of the corresponding latent construct, is calculated. The weight for each formative indicator is presented in Table 8.6. The table specifies that eight of the weights for the formative items have significant t-values whilst eleven do not.

Bollen and Lennox (1991) emphasized the need for sampling all facets of a formative construct. This approach was applied in the development of the five formative latent constructs. Therefore, the definition of the constructs would change if any indicator were deleted. Fornell, Lorange, and Roos (1990), in their research had formative indicators with very low weights including one, which was negative. However, they stressed on the importance of construct conceptualization and justified their decision not to omit any indicator. Santosa, Wei, and Chan (2005) in their study reported seven out of thirteen indicators as having low indicator weight including two negative values. Similarly, they believed the low weights were not problematic. Bollen and Lennox (1991, 308) explained, for a formative construct "omitting an indicator is omitting a part of the construct". Furthermore, Diamantopoulos and Winklhofer (2001) recommended elimination only when the breadth of the construct

composition is not compromised. This justifies the inclusion of all the formative indicators in the measurement model.

Table 8.6: Indicator weight for formative items

Construct	Item	Weight	t-value
Professional Bodies	PB1	0.7296	2.8741**
	PB2	0.1302	0.4685
	PB3	0.2598	1.0799
Accounting Firms	AF1	0.318	1.3102
	AF2	0.3383	1.2197
	AF3	-0.2235	0.9038
	AF4	0.5933	2.5071**
	AF5	0.1322	0.5108
Media	MD1	0.3296	0.8497
	MD2	-0.3187	0.5831
	MD3	0.9954	1.7493*
Government	GOV1	0.1264	0.3106
	GOV2	1.2834	3.4973***
	GOV3	-0.6948	1.9087*
Stakeholder Pressure	SHP1	0.393	2.5521**
	SHP2	0.0335	0.2407
	SHP3	0.3204	2.0116*
	SHP4	0.4528	2.8900**
	SHP5	-0.0987	0.5942

Notes: ***p<0.001; **p<0.01; *p<0.05

In addition, the test of multicollinearity was conducted on the formative items. Low collinearity among items is vital in ensuring the stability of the estimates (Mathieson, Peacock, and Chin 2001). Hence, this establishes that each indicator has its own distinct influence. To examine multicollinearity, the variance inflation factor (VIF) scores for each item is calculated. The higher the VIF score, the higher is the degree of multicollinearity. The SPSS 17 statistical package was utilized to run regression

analysis with the PLS construct scores as the dependent variable and the items as independent variable (Andreev et al. 2009).

The results depicted in Table 8.7 shows that all the VIF scores are below 5. This number is well below the recommended maximum threshold of 10 (Kleinbaum et al. 1998). Furthermore, this value is below the maximum level of 5 suggested by Mathieson, Peacock, and Chin (2001). Therefore, all the formative items are retained.

Table 8.7: Results of multicollinearity test

Construct	Item	Variation Inflation Factor (VIF)
Professional Bodies	PB1	1.804
	PB2	2.140
	PB3	1.912
Accounting Firms	AF1	1.961
	AF2	2.768
	AF3	2.711
	AF4	2.034
	AF5	2.675
Media	MD1	1.751
	MD2	2.939
	MD3	3.592
Government	GOV1	2.127
	GOV2	2.089
	GOV3	2.424
Stakeholder Pressure	SHP1	3.631
	SHP2	2.488
	SHP3	4.780
	SHP4	3.342
	SHP5	4.583

8.3.2 Assessment of Structural Model

The explanatory power of the proposed model was assessed by estimating the variance associated with endogenous constructs. The path coefficients and *t*-values of the hypothesized relationships were calculated to evaluate the significance of the

relationships. Chin and Newsted (1999) and Hanlon (2001) contended that PLS is ideal for assessing the statistical significance of the path loadings and path coefficients between constructs because it does not require normal distribution of data.

Gefen, Straub, and Boudreau (2000) have specified two non-parametric methods to test the relationships between constructs namely 'bootstrap' and 'jackknife'. 'Bootstrap', the more advanced method is chosen for this study. The advantage is that it produces both t-value and R^2 value. The t-value is equivalent to the t-test and it evaluates the significance of the hypothesized relationships. The R^2 value is interpreted in a similar way as in multiple regression analysis. This value estimates the variance associated with endogenous constructs. Therefore, the explanatory power within the model and the proposed overall model could be evaluated.

8.3.2.1 Coefficient of Determination

The explanatory powers of the model were assessed by calculating the coefficient of determination (R^2) of the endogenous constructs (Santosa, Wei, and Chan 2005). Falk and Miller (1992) proposed that the minimum R^2 should be 0.10. Table 8.8 indicates that all the R^2 values are above this requirement. Moreover, the overall model explains 45.5% of the variance (R^2) of the intention to use forensic accounting services.

Table 8.8: Coefficient of determination (R^2)

Endogenous Construct	R^2
Awareness of Forensic Accounting Services (AW)	0.125
Perceived Risks of Forensic Accounting Services (PR)	0.230
Perceived Benefits of Forensic Accounting Services (PBF)	0.149
Attitude towards Forensic Accounting Services (ATT)	0.424
Behavioral Intention to Use Forensic accounting Services (BI)	0.455

This indicates that 45.5% of large Malaysian company's intention to use forensic accounting services for fraud detection and prevention can be explained by the constructs in this model. Furthermore, 42.4% of the CFO's attitude can be accounted for by their perceptions of the benefits and risks of forensic accounting services. However, only 14.9% of perceived benefits of acquiring forensic accounting services are due to awareness of forensic accounting services. The R^2 for perceived risks of acquiring forensic accounting services which was attributed to awareness of forensic accounting services and financial cost is slightly higher at 23%. The results also indicate that 12.5% of the explanatory power of awareness is through professional bodies, accounting firms, media, and government.

8.3.2.2 Test of Hypotheses

The results of the hypotheses testing are summarized in Table 8.9. The standardized path coefficient indicates whether the direction of the relationship is either positive or negative whilst the t-value assesses whether this relationship is significant or not. The table shows that eleven of the first seventeen hypotheses are supported. The three contextual factor hypotheses will be discussed in Section 8.4.6. The most significant influence is perceived benefit of forensic accounting services on attitude towards forensic accounting services. In addition, there are five constructs directly influencing behavioral intention. All the significant relationships show positive

directions except for financial cost to behavior intention and perceived risks to attitude.

Table 8.9: Results of hypotheses testing

Hypothesis	Standardized Path Coefficient	t-Value
H1: Professional Bodies (PB) → Awareness (AW)	0.165	2.625**
H2: Accounting Firms (AF) → Awareness (AW)	0.195	2.577**
H3: Media (MD) → Awareness (AW)	-0.009	0.122
H4: Government (GOV) → Awareness (AW)	0.098	1.201
H5a: Awareness (AW) → Perceived Benefits (PBF)	0.386	5.958***
H5b: Awareness (AW) → Perceived Risks (PR)	-0.044	0.793
H6: Perceived Benefits (PBT) → Attitude (ATT)	0.611	15.008***
H7: Perceived Risk (PBT) → Attitude (ATT)	-0.214	4.710***
H8: Attitude (ATT) → Behavioral Intention (BI)	0.190	2.755**
H9: Stakeholder Pressure (SHP) → Behavioral Intention (BI)	0.376	4.718***
H10a: Financial Cost (FC) → Behavioral Intention (BI)	-0.210	3.783***
H10b: Financial Cost (FC) → Perceived Risks (PR)	0.466	8.826***
H11: Organizational Ethical Climate (OEC) → Behavioral Intention (BI)	0.123	2.036*
H12: Strength of Internal Control System (ICS) → Behavioral Intention(BI)	-0.040	0.636
H13: Government Pressure (GVP) → Behavioral Intention (BI)	0.056	1.034
H14: Perceived Severity (SEV) → Behavioral Intention (BI)	0.083	1.676*
H15: Perceived Susceptibility (SUS) → Behavioral Intention (BI)	0.085	1.601

Notes: ***p<0.001; **p<0.01; *p<0.05

8.4 Hypotheses Testing

The explanatory power of the behavioral intention model is satisfactory at R^2 = 45.5% However, seven of the twenty hypotheses were not supported by the hypotheses testing. This section details the results for each hypothesis.

8.4.1 External Factors

Results for hypotheses H1 to H4 are tabulated in Table 8.10. Hypothesis 1 tests the influence of professional bodies in increasing the large Malaysian companies' awareness of forensic accounting services. It was hypothesized that professional bodies' activities would have a significant positive influence on increasing awareness of forensic accounting services. This statement is supported by the statistical test. The standardized path coefficient is 0.165 whilst the t-value is 2.625. The t-value is significant at $p < 0.05$. It can therefore be argued that professional bodies influence the awareness of forensic accounting services amongst large Malaysian companies.

Hypothesis H2 tests the influence of persuasive activities by accounting firms on large companies' awareness of forensic accounting services. The standardized path coefficient is 0.195 whilst the t-value is 2.577. The positive impact of accounting firms is supported at $p < 0.01$. Therefore, for this endogenous construct, accounting firms are the most influential contributing factor in increasing awareness of forensic accounting services.

These two results are in contrast to the results for hypothesis H3 and hypothesis H4. Both of these hypotheses have a low standardized path coefficient of -0.009 and 0.098 respectively and very low t-value of 0.122 and 1.201. Therefore, publicity created by media and government on forensic accounting services does not have a significant influence on increasing the awareness of forensic accounting services amongst large Malaysian companies. These results differ from the findings of the qualitative field study. The quantitative national study indicates that the influence is not significant and both the hypotheses have to be rejected.

Table 8.10: Summary of external factors hypothesis testing

Hypothesis	γ	t-Value	Outcome
H1: Professional bodies' activities will positively influence large Malaysian companies' awareness of forensic accounting services.	0.165	2.625**	Supported
H2: Accounting firms' activities will positively influence large Malaysian companies' awareness of forensic accounting services.	0.195	2.577**	Supported
H3: Media activities will positively influence large Malaysian companies' awareness of forensic accounting services.	-0.009	0.122	Not Supported
H4: Government activities will positively influence large Malaysian companies' awareness of forensic accounting services.	0.098	1.201	Not Supported

Notes: ***p<0.001; **p<0.01; *p<0.05
γ = standardized path coefficient

8.4.2 Cognitive Factors

The cognitive factors hypotheses' testing is summarized in Table 8.11. Hypothesis H5, the influence of awareness on perceived benefits and perceived risks of forensic accounting services was split into two-sub hypothesis. Hypothesis 5a had a standardized path coefficient of 0.386 and t-value of 5.958. Therefore, strong support at $p < 0.01$ was found for hypothesis 5a which stated that awareness had a significant positive influence on perceived benefits. From this finding, it is evident that the more aware large Malaysian companies are of forensic accounting services, the more they perceive the benefits of forensic accounting services. However, hypothesis 5b, the influence of awareness on perceived risks was not supported. The path coefficient of -0.044 showed the hypothesized negative direction but the statistical evidence was not significant for t-value of 0.793. Hence, hypothesis 5b is rejected. It can therefore be assumed that awareness of forensic accounting services would not significantly influence the perceptions of forensic accounting services risks.

Table 8.11: Summary of cognitive factors hypothesis testing

Hypothesis	γ	t-Value	Outcome
H5a: Awareness of forensic accounting services will positively influence the perceived benefits of using forensic accounting services.	0.386	5.958***	Supported
H5b: Awareness of forensic accounting services will negatively influence the perceived risks of using forensic accounting services.	-0.044	0.793	Not Supported
H6: The perceived benefits of using forensic accounting services will positively influence the attitude towards using forensic accounting services.	0.611	15.008***	Supported
H7: The perceived risks of using forensic accounting services will negatively influence the attitude towards using forensic accounting services.	-0.214	4.710***	Supported
H8: The positive attitude towards using forensic accounting services will positively influence the intention to use forensic accounting services.	0.190	2.755**	Supported

Notes: ***p<0.001; **p<0.01; *p<0.05
γ = standardized path coefficient

Hypothesis H6 had the highest standard path coefficient (0.611) and the highest t-value (15.608) in the overall model. The hypothesis was significant. This suggests that the greater the perceived benefits of forensic accounting services, the positive attitude towards forensic accounting services also increases. Hypothesis H7 revealed a negative standardized path coefficient 0f -0.214 as hypothesized. The t-value 4.710 proved that this relationship is also significant. The statistical evidence corroborates the hypothesis that perceived risks increases the negative attitude towards forensic accounting services.

Hypothesis H8 is the first hypothesis that investigates the direct influence of a construct on behavioral intention. Attitude towards forensic accounting services

positively influences the behavioral intention because the standardized path coefficient of 0.190 is statistically significant. This t-value of 2.755 was significant at $p < 0.05$.

8.4.3 Normative Factor

Table 8.12 depicts the results for hypothesis H9. This hypothesis infers the positive influence of stakeholder pressure on behavioral intention. The standardized path coefficient value is 0.376 and the corresponding t-value is 4.718. The value is statistically significant at $p < 0.001$. This result confirms the significant positive influence of stakeholder pressure on behavioral intention to use forensic accounting services in fraud detection and prevention.

Table 8.12: Summary of normative factor hypothesis testing

Hypothesis	γ	t-Value	Outcome
H9: Stakeholders' pressure will positively influence the intention to use forensic accounting services by large Malaysian companies.	0.376	4.718***	Supported

Notes: ***p<0.001; **p<0.01; *p<0.05
γ = standardized path coefficient

8.4.4 Internal and External Control Factors

Table 8.13 presents the results for control factors. Financial cost was expected to influence both behavioral intention and perceived risks. The corresponding standardized path coefficient was -0.210 and 0.466. Two sub hypotheses H10a and H10b were formed. Therefore, the direction of influence is negative on behavioral intention whilst for perceived risks it is positive. The significant negative influence of financial cost on behavioral intention is supported by the t-value of 3.783 at $p < 0.001$. Likewise, the significant positive influence of financial cost on perceived risks is also similarly supported by t-value of 8.826. These results indicate that financial cost is a focal consideration that affects organizational intention to use forensic accounting services for fraud detection and prevention.

The subsequent hypothesis H11 is organizational ethical climate's influence on behavioral intention. The standardized sized path coefficient was 0.123 and the t-value is 2.036 which is significant at $p < 0.05$. The result shows that organizational ethical climate positively influences the behavioral intention to use forensic accounting services.

Hypothesis H12 concerns strength of organizational internal control system. The PLS analysis yielded a negative standardized path coefficient (-0.040) as hypothesized. However, the t-value of 0.636 was not statistically significant. Therefore, the hypothesis is rejected. As a result, it can be inferred that the strength of the internal control system does not influence the behavioral intention to use forensic accounting services by large Malaysian companies in the detection and prevention of fraud.

Surprisingly, hypothesis H13 on government pressure was also rejected. The standardized path coefficient was positive but the value is a low 0.056. The t-value of 1.034 was not significant. Therefore, government pressure does not influence large Malaysian company's decision to utilize forensic accounting services in fraud detection and prevention.

Table 8.13: Summary of external and internal control factors hypothesis testing

Hypothesis	γ	t-Value	Outcome
H10a: The perceived financial cost of forensic accounting services will negatively influence the intention to use forensic accounting services by large Malaysian companies.	-0.210	3.783***	Supported
H10b: The perceived financial cost of forensic accounting services will positively influence the perceived risks of using forensic accounting services by large Malaysian companies.	0.466	8.826***	Supported
H11: Organizational ethical climate will positively influence the intention to use forensic accounting services by large Malaysian companies.	0.123	2.036*	Supported
H12: Strength of internal control will negatively influence the intention to use forensic accounting services by large Malaysian companies.	-0.040	0.636	Not Supported
H13: Government pressure will positively influence the intention to use forensic accounting services by large Malaysian companies.	0.056	1.034	Not Supported

Notes: ***p<0.001; **p<0.01; *p<0.05
γ = standardized path coefficient

8.4.5 Threat Perception Factors

Hypotheses H14 and H15 were concerned with threat perception factors. The results for these two hypotheses are portrayed in Table 8.14. The two factors, perceived severity of fraud and perceived susceptibility to fraud was hypothesized to positively influence the behavioral intention to use forensic accounting services by large Malaysian companies. The standardized path coefficient for the constructs were both positive. The value for perceived severity is 0.083 whilst for perceived susceptibility is 0.085. However, only one of the threat perception factors, that is perceived severity to fraud, had a significant t-value of 1.676, whilst the t-value for perceived susceptibility was only 1.601. It can be inferred that the perception of the severity of

fraud will significantly influence the intention to utilize forensic accounting services in fraud detection and prevention whilst perceptions of susceptibility to fraud will not.

Table 8.14: Summary of threat perception factors hypothesis testing

Hypothesis	γ	t-Value	Outcome
H14: The perceived severity of fraud will positively influence the intention to use forensic accounting services by large Malaysian companies.	0.083	1.676*	Supported
H15: The perceived susceptibility of fraud will positively influence the intention to use forensic accounting services by large Malaysian companies.	0.085	1.601	Not Supported

Notes: ***p<0.001; **p<0.01; *p<0.05
γ = standardized path coefficient

8.4.6 Contextual Factors

The multi-group analysis method recommended by Chin (2004) was utilized to examine the hypothesis on the moderating effects of organizational size, industry type, and organizational type on the relationship between behavioral intention and its immediate antecedents. The hypothesis was divided to three sub-hypotheses to accommodate the three types of moderators. The item measurement model was again examined for item reliability, internal consistency, and average variance extracted to determine the convergent validity for reflective items. Table 8.15a, 8.15b, 8.15c, 8.15d, 8.15e, and 8.15f present the detailed item loading for each sub sample. The same minimum value of 0.5 was applied and low loading items were discarded. The refined measurement model was again tested to ensure all loadings to be above 0.5. The specification for the minimum value of internal consistency is 0.7 whilst AVE value should be greater than 0.5. Results of statistical analysis show that all the reflective constructs fulfill these criteria. Therefore, the convergent validity for each subgroup was established.

Table 8.15a: Item loading, internal consistency, and average variance extracted (AVE) for company turnover ≤ RM100 million (n=142)

Construct	Item	Loading	Internal Consistency	AVE
Financial Cost	FC1	0.8206	0.887	0.725
	FC2	0.8175		
	FC3	0.9121		
Organizational Ethical Climate	OEC1	0.7380	0.879	0.592
	OEC2	0.7146		
	OEC3	0.8355		
	OEC4	0.7577		
	OEC6	0.7958		
Strength of Internal Control System	SICS1	0.7560	0.943	0.648
	SICS2	0.7845		
	SICS3	0.8604		
	SICS4	0.8647		
	SICS5	0.8273		
	SICS6	0.8887		
	SICS7	0.6413		
	SICS8	0.8252		
	SICS9	0.7695		
Government Pressure	GVP1	0.8178	0.848	0.584
	GVP2	0.7673		
	GVP3	0.7869		
	GVP4	0.6783		
Attitude towards Forensic Accounting Services	ATT1	0.9069	0.932	0.821
	ATT2	0.9061		
	ATT3	0.9048		
Perceived Severity of Fraud	SEV1	0.9088	0.906	0.660
	SEV2	0.8922		
	SEV3	0.8415		
	SEV4	0.6873		
	SEV5	0.7070		
Perceived Susceptibility to Fraud	SUS1	0.9050	0.877	0.706
	SUS2	0.8972		
	SUS4	0.7035		
Behavioral Intention to Use Forensic Accounting Services	BI1	0.8423	0.883	0.656
	BI2	0.9008		
	BI3	0.8026		
	BI4	0.6788		

Table 8.15b: Item loading, internal consistency, and average variance extracted (AVE) for company turnover > RM100 million (n=163)

Construct	Item	Loading	Internal Consistency	AVE
Financial Cost	FC1	0.8242	0.809	0.587
	FC2	0.7713		
	FC3	0.6973		
Organizational Ethical Climate	OEC3	0.7133	0.817	0.530
	OEC4	0.7916		
	OEC6	0.7836		
	OEC7	0.6085		
Strength of Internal Control System	SICS1	0.7743	0.934	0.704
	SICS3	0.8098		
	SICS4	0.8697		
	SICS6	0.8559		
	SICS8	0.8488		
	SICS9	0.8720		
Government Pressure	GVP1	0.5896	0.818	0.539
	GVP2	0.5583		
	GVP3	0.8912		
	GVP4	0.8386		
Attitude towards Forensic Accounting Services	ATT1	0.9028	0.942	0.845
	ATT2	0.9455		
	ATT3	0.9087		
Perceived Severity of Fraud	SEV1	0.7744	0.922	0.663
	SEV2	0.8708		
	SEV3	0.8570		
	SEV4	0.8447		
	SEV5	0.8260		
	SEV6	0.7018		
Perceived Susceptibility to Fraud	SUS1	0.8576	0.831	0.624
	SUS2	0.6685		
	SUS4	0.8298		
Behavioral Intention to Use Forensic Accounting Services	BI1	0.8491	0.874	0.641
	BI2	0.8944		
	BI3	0.8532		
	BI4	0.5627		

Table 8.15c: Item loading, internal consistency, and average variance extracted (AVE) for financial services company (n=49)

Construct	Item	Loading	Internal Consistency	AVE
Financial Cost	FC1	0.7097	0.800	0.572
	FC2	0.7551		
	FC3	0.8013		
Organizational Ethical Climate	OEC3	0.8478	0.847	0.583
	OEC4	0.7746		
	OEC5	0.6198		
	OEC6	0.7923		
Strength of Internal Control System	SICS1	0.8186	0.921	0.568
	SICS2	0.7174		
	SICS3	0.7885		
	SICS4	0.6868		
	SICS5	0.8467		
	SICS6	0.8216		
	SICS7	0.7364		
	SICS8	0.6820		
	SICS9	0.6559		
Government Pressure	GVP2	0.6979	0.772	0.530
	GVP3	0.7289		
	GVP4	0.7568		
Attitude towards Forensic Accounting Services	ATT1	0.9100	0.933	0.822
	ATT2	0.9655		
	ATT3	0.8406		
Perceived Severity of Fraud	SEV1	0.8601	0.884	0.607
	SEV2	0.9077		
	SEV3	0.7224		
	SEV4	0.7447		
	SEV5	0.6295		
Perceived Susceptibility to Fraud	SUS1	0.8458	0.851	0.659
	SUS2	0.6633		
	SUS4	0.9065		
Behavioral Intention to Use Forensic Accounting Services	BI1	0.8471	0.891	0.673
	BI2	0.9161		
	BI3	0.8145		
	BI4	0.6863		

Table 8.15d: Item loading, internal consistency, and average variance extracted (AVE) for non-financial services company (n=256)

Construct	Item	Loading	Internal Consistency	AVE
Financial Cost	FC1	0.8362	0.863	0.679
	FC2	0.7783		
	FC3	0.8547		
Organizational Ethical Climate	OEC1	0.6834	0.861	0.555
	OEC2	0.6757		
	OEC3	0.7310		
	OEC4	0.7593		
	OEC6	0.8612		
Strength of Internal Control System	SICS1	0.7633	0.942	0.647
	SICS2	0.7945		
	SICS3	0.8272		
	SICS4	0.8622		
	SICS5	0.8231		
	SICS6	0.8741		
	SICS7	0.6319		
	SICS8	0.8254		
	SICS9	0.8129		
Government Pressure	GVP1	0.6434	0.830	0.556
	GVP2	0.5923		
	GVP3	0.8787		
	GVP4	0.8279		
Attitude towards Forensic Accounting Services	ATT1	0.9034	0.938	0.835
	ATT2	0.9218		
	ATT3	0.9153		
Perceived Severity of Fraud	SEV1	0.8418	0.915	0.644
	SEV2	0.8752		
	SEV3	0.8639		
	SEV4	0.7854		
	SEV5	0.8023		
	SEV6	0.6165		
Perceived Susceptibility to Fraud	SUS1	0.9106	0.857	0.669
	SUS2	0.8071		
	SUS4	0.7252		
Behavioral Intention to Use Forensic Accounting Services	BI1	0.8340	0.874	0.639
	BI2	0.8916		
	BI3	0.8308		
	BI4	0.6114		

Table 8.15e: Item loading, internal consistency, and average variance extracted (AVE) for public listed company (n=114)

Construct	Item	Loading	Internal Consistency	AVE
Financial Cost	FC1	0.8247	0.824	0.610
	FC2	0.7490		
	FC3	0.7681		
Organizational Ethical Climate	OEC1	0.7722	0.897	0.637
	OEC2	0.8810		
	OEC3	0.8803		
	OEC4	0.7324		
	OEC6	0.7084		
Strength of Internal Control System	SICS1	0.7152	0.920	0.625
	SICS2	0.7947		
	SICS3	0.9007		
	SICS4	0.8393		
	SICS5	0.8716		
	SICS7	0.6702		
	SICS8	0.7100		
	SICS9	0.6554		
Government Pressure	GVP2	0.7033	0.768	0.530
	GVP3	0.8558		
	GVP4	0.6017		
Attitude towards Forensic Accounting Services	ATT1	0.8855	0.925	0.805
	ATT2	0.9125		
	ATT3	0.8934		
Perceived Severity of Fraud	SEV1	0.8398	0.921	0.662
	SEV2	0.8769		
	SEV3	0.8498		
	SEV4	0.7756		
	SEV5	0.8138		
	SEV6	0.7146		
Perceived Susceptibility to Fraud	SUS1	0.8757	0.838	0.635
	SUS2	0.7288		
	SUS4	0.7784		
Behavioral Intention to Use Forensic Accounting Services	BI1	0.7838	0.885	0.661
	BI2	0.8996		
	BI3	0.8515		
	BI4	0.7088		

Table 8.15f: Item loading, internal consistency, and average variance extracted (AVE) for non-public listed company (n=191)

Construct	Item (Observed Variables)	Loading	Internal Consistency	AVE
Financial Cost	FC1	0.8224	0.871	0.693
	FC2	0.7921		
	FC3	0.8801		
Organizational Ethical Climate	OEC1	0.9309	0.865	0.693
	OEC2	0.95655		
	OEC3	0.5464		
Strength of Internal Control System	SICS1	0.7754	0.944	0.654
	SICS2	0.8199		
	SICS3	0.8762		
	SICS4	0.8792		
	SICS5	0.8109		
	SICS6	0.8617		
	SICS7	0.6278		
	SICS8	0.8191		
	SICS9	0.7809		
Government Pressure	GVP1	0.7545	0.858	0.605
	GVP2	0.6048		
	GVP3	0.8733		
	GVP4	0.8508		
Attitude towards Forensic Accounting Services	ATT1	0.9118	0.943	0.846
	ATT2	0.9337		
	ATT3	0.9138		
Perceived Severity of Fraud	SEV1	0.8385	0.900	0.607
	SEV2	0.8755		
	SEV3	0.8431		
	SEV4	0.7903		
	SEV5	0.7587		
	SEV6	0.5123		
Perceived Susceptibility to Fraud	SUS1	0.9107	0.874	0.700
	SUS2	0.8350		
	SUS4	0.7569		
Behavioral Intention to Use Forensic Accounting Services	BI1	0.8731	0.875	0.644
	BI2	0.9045		
	BI3	0.8352		
	BI4	0.5457		

The discriminant validity for each subgroup was also assessed. Table 8.16a, 8.16b, 8.16c, 8.16d, 8.16e, and 8.16f indicate that the square root of the AVE of each construct is larger than its correlation with other constructs. The correlations of the

items with its latent variable scores are detailed in table 8.17a, 8.17b, 8.17c, 8.17d, 8.17e, and 8.17f. The result shows that all items are loaded higher on the construct they intended to measure. This confirms that discriminant validity was achieved.

Table 8.16a: Correlation of latent variables and square roots of AVE for company with turnover ≤ RM100 million (n=142)

	FC	OEC	SICS	GVP	ATT	SEV	SUS	BI
Financial Cost (FC)	**0.851**							
Organizational Ethical Climate (OEC)	-0.127	**0.769**						
Strength of Internal Control System (SICS)	-0.241	-0.064	**0.805**					
Government Pressure (GVP)	-0.137	-0.113	0.380	**0.764**				
Attitude (ATT)	-0.316	0.112	0.306	0.361	**0.906**			
Perceived Severity (SEV)	-0.170	0.007	0.135	0.243	0.386	**0.812**		
Perceived Susceptibility (SUS)	0.070	-0.251	0.146	0.419	0.072	0.287	**0.840**	
Behavioral Intention (BI)	-0.405	0.199	0.192	0.228	0.532	0.333	0.130	**0.810**

Table 8.16b: Correlation of latent variables and square roots of AVE for company with turnover > RM100 million (n=163)

	FC	OEC	SICS	GVP	ATT	SEV	SUS	BI
Financial Cost (FC)	**0.766**							
Organizational Ethical Climate (OEC)	-0.233	**0.728**						
Strength of Internal Control System (SICS)	0.027	0.159	**0.839**					
Government Pressure (GVP)	-0.034	-0.072	0.012	**0.734**				
Attitude (ATT)	-0.123	0.145	0.045	0.299	**0.919**			
Perceived Severity (SEV)	0.130	-0.158	0.084	0.247	0.247	**0.814**		
Perceived Susceptibility (SUS)	0.047	-0.186	-0.158	0.238	0.104	0.401	**0.790**	
Behavioral Intention (BI)	-0.301	0.148	0.037	0.405	0.483	0.318	0.259	**0.801**

Table 8.16c: Correlation of latent variables and square roots of AVE for financial services company (n=49)

	FC	OEC	SICS	GVP	ATT	SEV	SUS	BI
Financial Cost (FC)	**0.756**							
Organizational Ethical Climate (OEC)	-0.422	**0.764**						
Strength of Internal Control System (SICS)	0.270	-0.047	**0.754**					
Government Pressure (GVP)	0.143	-0.060	0.240	**0.728**				
Attitude (ATT)	-0.162	0.333	-0.059	0.124	**0.907**			
Perceived Severity (SEV)	-0.024	0.213	0.033	0.278	0.378	**0.779**		
Perceived Susceptibility (SUS)	0.062	-0.233	-0.162	0.325	0.081	0.241	**0.812**	
Behavioral Intention (BI)	-0.462	0.405	-0.244	0.124	0.441	0.418	0.277	**0.820**

Table 8.16d: Correlation of latent variables and square roots of AVE for non-financial services company (n=256)

	FC	OEC	SICS	GVP	ATT	SEV	SUS	BI
Financial Cost (FC)	**0.824**							
Organizational Ethical Climate (OEC)	-0.086	**0.745**						
Strength of Internal Control System (SICS)	-0.156	0.096	**0.804**					
Government Pressure (GVP)	-0.074	-0.218	0.214	**0.746**				
Attitude (ATT)	-0.200	0.084	0.195	0.322	**0.914**			
Perceived Severity (SEV)	0.016	0.151	0.090	0.236	0.322	**0.802**		
Perceived Susceptibility (SUS)	0.091	-0.278	0.032	0.342	0.086	0.376	**0.818**	
Behavioral Intention (BI)	-0.292	0.097	0.127	0.318	0.516	0.287	0.157	**0.799**

Table 8.16e: Correlation of latent variables and square roots of AVE for public listed company (n=114)

	FC	OEC	SICS	GVP	ATT	SEV	SUS	BI
Financial Cost (FC)	**0.781**							
Organizational Ethical Climate (OEC)	-0.411	**0.798**						
Strength of Internal Control System (SICS)	0.134	0.161	**0.791**					
Government Pressure (GVP)	-0.152	0.162	-0.056	**0.728**				
Attitude (ATT)	-0.232	0.239	-0.135	0.176	**0.897**			
Perceived Severity (SEV)	0.095	0.144	-0.063	0.255	0.393	**0.814**		
Perceived Susceptibility (SUS)	0.110	-0.091	-0.183	0.292	0.154	0.299	**0.797**	
Behavioral Intention (BI)	-0.350	0.400	-0.131	0.374	0.519	0.338	0.327	**0.813**

Table 8.16f: Correlation of latent variables and square roots of AVE for non-public listed company (n=191)

	FC	OEC	SICS	GVP	ATT	SEV	SUS	BI
Financial Cost (FC)	**0.832**							
Organizational Ethical Climate (OEC)	-0.044	**0.832**						
Strength of Internal Control System (SICS)	-0.218	0.039	**0.809**					
Government Pressure (GVP)	-0.093	-0.199	0.283	**0.778**				
Attitude (ATT)	-0.195	0.004	0.281	0.380	**0.920**			
Perceived Severity (SEV)	0.036	-0.158	0.152	0.261	0.296	**0.779**		
Perceived Susceptibility (SUS)	0.157	-0.250	0.090	0.377	0.056	0.408	**0.837**	
Behavioral Intention (BI)	-0.321	0.143	0.171	0.309	0.504	0.322	0.119	**0.802**

Table 8.17a: Cross loading matrix for company turnover ≤ RM100 million (n=142)

	ATT	FC	OEC	SICS	GVP	SEV	SUS	BI
ATT1	**0.858**	-0.196	-0.007	0.291	0.276	0.375	0.072	0.516
ATT2	**0.831**	-0.230	0.071	0.372	0.264	0.397	0.060	0.431
ATT3	**0.907**	-0.251	0.109	0.337	0.339	0.286	0.008	0.507
FC1	-0.052	**0.732**	-0.121	-0.046	0.008	-0.081	0.080	-0.246
FC2	-0.298	**0.765**	-0.141	-0.319	-0.076	-0.035	0.058	-0.238
FC3	-0.313	**0.922**	-0.160	-0.174	-0.156	-0.129	0.060	-0.301
OEC1	0.016	-0.197	**0.736**	-0.021	-0.031	-0.079	-0.081	0.128
OEC2	-0.023	-0.154	**0.735**	-0.062	-0.009	-0.054	-0.115	0.054
OEC3	0.139	-0.123	**0.833**	-0.039	-0.106	0.089	-0.147	0.197
OEC4	-0.044	-0.075	**0.756**	-0.094	-0.207	-0.084	-0.237	0.128
OEC6	0.119	-0.221	**0.795**	-0.023	-0.082	-0.098	-0.320	0.214
SICS1	0.296	-0.137	-0.024	**0.785**	0.285	0.156	0.087	0.129
SICS2	0.297	-0.112	-0.039	**0.767**	0.253	0.108	0.033	0.070
SICS3	0.273	-0.170	-0.108	**0.832**	0.271	0.142	0.082	0.081
SICS4	0.342	-0.203	-0.112	**0.841**	0.269	0.150	0.058	0.138
SICS5	0.297	-0.174	-0.100	**0.820**	0.339	0.183	0.120	0.108
SICS6	0.326	-0.143	0.003	**0.870**	0.287	0.147	0.098	0.245
SICS7	0.298	-0.258	-0.021	**0.687**	0.246	0.046	0.102	0.068
SICS8	0.304	-0.096	-0.066	**0.821**	0.264	0.149	0.157	0.208
SICS9	0.293	-0.141	-0.054	**0.775**	0.275	0.087	0.025	0.135
GVP1	0.280	-0.011	0.031	0.180	**0.771**	0.280	0.292	0.231
GVP2	0.330	-0.111	0.132	0.330	**0.702**	0.215	0.259	0.270
GVP3	0.283	-0.091	-0.310	0.317	**0.808**	0.233	0.378	0.186
GVP4	0.111	-0.108	-0.245	0.192	**0.688**	0.241	0.343	0.076
SEV1	0.338	-0.068	-0.076	0.135	0.258	**0.893**	0.232	0.379
SEV2	0.320	-0.056	0.089	0.118	0.186	**0.879**	0.156	0.360
SEV3	0.288	-0.146	-0.083	0.143	0.336	**0.859**	0.243	0.241
SEV4	0.162	0.162	0.004	0.102	0.224	**0.705**	0.287	0.121
SEV5	0.219	-0.031	-0.019	0.030	0.164	**0.716**	0.317	0.189
SUS1	0.107	0.062	-0.160	0.189	0.405	0.265	**0.913**	0.109
SUS2	-0.090	0.073	-0.192	0.001	0.271	0.307	**0.868**	0.083
SUS4	-0.016	0.031	-0.273	0.044	0.403	0.169	**0.692**	0.014
BI1	0.537	-0.264	0.121	0.271	0.225	0.149	0.099	**0.818**
BI2	0.560	-0.237	0.121	0.292	0.278	0.310	0.166	**0.880**
BI3	0.403	-0.172	-0.002	0.197	0.249	0.384	0.197	**0.793**
BI4	0.345	-0.411	0.425	-0.067	0.040	0.215	-0.121	**0.642**

Table 8.17b: Cross loading matrix for company turnover > RM100 million (n=163)

	ATT	FC	OEC	SICS	GVP	SEV	SUS	BI
ATT1	**0.898**	-0.199	0.118	0.123	0.308	0.211	0.060	0.470
ATT2	**0.900**	-0.103	0.038	0.025	0.327	0.276	0.112	0.468
ATT3	**0.882**	-0.103	0.006	0.093	0.199	0.250	0.052	0.400
FC1	-0.059	**0.799**	-0.063	0.147	-0.033	0.024	-0.020	-0.198
FC2	-0.275	**0.689**	-0.231	-0.230	-0.026	0.125	0.102	-0.165
FC3	-0.076	**0.707**	-0.158	-0.003	0.005	0.205	0.077	-0.057
OEC3	0.151	-0.034	**0.687**	0.188	-0.063	-0.001	-0.113	0.097
OEC4	0.050	-0.095	**0.799**	0.089	-0.026	-0.090	-0.077	0.106
OEC6	0.100	-0.152	**0.766**	0.319	-0.017	-0.132	-0.219	0.119
OEC7	0.010	-0.321	**0.545**	0.014	-0.088	-0.201	-0.205	0.053
SICS1	0.075	0.126	0.136	**0.768**	-0.019	0.133	-0.121	0.093
SICS3	0.054	0.028	0.051	**0.768**	-0.036	0.017	-0.177	0.085
SICS4	0.146	-0.038	0.151	**0.834**	0.021	0.098	-0.167	0.106
SICS6	0.055	-0.004	0.142	**0.834**	0.034	0.083	-0.082	0.073
SICS8	0.013	0.051	0.129	**0.822**	0.020	0.085	-0.150	0.043
SICS9	0.030	0.013	0.171	**0.856**	0.058	0.056	-0.141	0.033
GVP1	0.050	0.092	-0.028	0.155	**0.570**	0.085	0.089	0.076
GVP2	0.127	0.023	0.162	0.201	**0.443**	0.134	0.042	0.225
GVP3	0.298	-0.042	-0.108	-0.023	**0.887**	0.263	0.251	0.424
GVP4	0.243	-0.009	-0.108	-0.018	**0.858**	0.271	0.234	0.323
SEV1	0.332	-0.026	-0.080	0.073	0.189	**0.761**	0.311	0.303
SEV2	0.245	0.017	-0.125	0.123	0.192	**0.860**	0.261	0.288
SEV3	0.181	0.134	-0.165	0.078	0.211	**0.849**	0.378	0.344
SEV4	0.195	0.166	-0.155	0.093	0.269	**0.855**	0.362	0.327
SEV5	0.169	0.164	-0.134	0.029	0.234	**0.840**	0.317	0.302
SEV6	0.190	0.202	-0.109	0.101	0.168	**0.672**	0.363	0.215
SUS1	0.019	-0.010	-0.114	-0.025	0.165	0.396	**0.885**	0.215
SUS2	-0.005	0.131	-0.296	-0.054	0.267	0.517	**0.701**	0.114
SUS4	0.046	0.073	-0.170	-0.219	0.225	0.224	**0.781**	0.135
BI1	0.414	-0.187	0.162	0.074	0.415	0.299	0.202	**0.828**
BI2	0.469	-0.102	0.030	0.030	0.390	0.376	0.214	**0.873**
BI3	0.392	-0.132	0.043	0.137	0.364	0.335	0.219	**0.846**
BI4	0.262	-0.247	0.260	0.079	0.120	0.014	0.014	**0.571**

Table 8.17c: Cross loading matrix for financial services company (n=49)

	ATT	FC	OEC	SICS	GVP	SEV	SUS	BI
ATT1	**0.901**	-0.196	0.256	0.089	0.116	0.453	0.045	0.397
ATT2	**0.890**	-0.118	0.286	-0.070	0.184	0.327	0.120	0.440
ATT3	**0.812**	-0.132	0.215	0.049	0.300	0.240	0.069	0.272
FC1	-0.027	**0.714**	-0.285	0.273	-0.124	0.016	0.042	-0.410
FC2	-0.390	**0.717**	-0.321	-0.064	0.193	-0.033	0.185	-0.332
FC3	-0.115	**0.728**	-0.454	0.268	0.077	-0.016	-0.093	-0.345
OEC3	0.380	-0.304	**0.816**	0.046	0.146	0.296	-0.228	0.438
OEC4	0.208	-0.229	**0.708**	-0.016	0.008	0.089	-0.003	0.184
OEC5	0.028	-0.261	**0.574**	0.008	-0.274	-0.046	-0.194	0.104
OEC6	0.316	-0.408	**0.797**	0.104	0.096	0.206	-0.142	0.258
SICS1	0.099	0.212	0.084	**0.775**	0.059	0.082	-0.112	-0.083
SICS2	0.031	0.119	0.040	**0.732**	-0.073	-0.002	-0.068	-0.195
SICS3	0.094	0.081	0.029	**0.785**	0.032	0.000	-0.166	-0.053
SICS4	0.044	0.014	0.085	**0.702**	0.093	0.166	-0.143	-0.018
SICS5	0.074	0.321	-0.145	**0.817**	0.007	0.085	-0.216	-0.229
SICS6	0.174	0.099	0.069	**0.772**	0.129	0.151	-0.103	-0.046
SICS7	0.134	0.123	0.037	**0.653**	0.289	0.063	-0.139	-0.171
SICS8	0.217	0.130	0.109	**0.723**	0.027	0.255	-0.110	0.014
SICS9	0.086	-0.033	0.119	**0.695**	0.128	0.028	-0.012	-0.083
GVP2	0.113	0.148	-0.002	0.352	**0.579**	0.245	-0.012	0.129
GVP3	0.213	-0.069	0.217	0.154	**0.738**	0.103	0.228	0.150
GVP4	0.111	-0.004	-0.042	-0.198	**0.812**	0.249	0.449	0.197
SEV1	0.434	-0.056	0.367	0.136	0.202	**0.827**	0.155	0.418
SEV2	0.375	0.043	0.170	0.111	0.200	**0.913**	0.054	0.438
SEV3	0.153	0.030	-0.048	0.045	0.422	**0.756**	0.385	0.278
SEV4	0.087	0.128	0.027	-0.019	0.400	**0.775**	0.303	0.282
SEV5	0.160	0.106	0.087	0.002	0.295	**0.732**	0.256	0.145
SUS1	-0.018	-0.009	-0.028	-0.046	0.318	0.131	**0.844**	0.124
SUS2	-0.003	0.190	-0.137	-0.228	0.304	0.439	**0.631**	0.128
SUS4	0.023	0.111	-0.213	-0.237	0.280	0.170	**0.916**	0.233
BI1	0.331	-0.408	0.492	-0.104	0.144	0.264	0.055	**0.778**
BI2	0.450	-0.363	0.276	-0.226	0.314	0.527	0.227	**0.902**
BI3	0.320	-0.235	0.131	-0.163	0.179	0.294	0.280	**0.797**
BI4	0.205	-0.430	0.424	-0.309	0.068	0.226	0.157	**0.729**

Table 8.17d: Cross loading matrix for non-financial services company (n=256)

	ATT	FC	OEC	SICS	GVP	SEV	SUS	BI
ATT1	**0.917**	-0.155	0.009	0.215	0.279	0.269	0.067	0.504
ATT2	**0.860**	-0.108	-0.002	0.196	0.274	0.344	0.076	0.441
ATT3	**0.862**	-0.143	0.048	0.214	0.215	0.277	0.037	0.475
FC1	-0.039	**0.773**	-0.041	0.055	0.033	-0.014	0.037	-0.176
FC2	-0.236	**0.730**	-0.119	-0.306	-0.047	0.083	0.061	-0.151
FC3	-0.167	**0.826**	-0.117	-0.145	-0.043	0.077	0.122	-0.128
OEC1	-0.036	-0.140	**0.672**	0.149	-0.162	-0.128	-0.177	0.070
OEC2	-0.032	-0.132	**0.680**	0.185	-0.173	-0.102	-0.187	0.040
OEC3	0.085	-0.032	**0.725**	0.053	-0.212	0.009	-0.119	0.076
OEC4	-0.060	-0.059	**0.751**	-0.019	-0.199	-0.120	-0.193	0.089
OEC6	0.040	-0.155	**0.856**	0.149	-0.140	-0.182	-0.301	0.136
SICS1	0.208	-0.044	0.104	**0.762**	0.161	0.161	0.013	0.147
SICS2	0.169	-0.039	0.103	**0.787**	0.163	0.106	0.018	0.090
SICS3	0.167	-0.112	0.010	**0.792**	0.137	0.074	-0.020	0.098
SICS4	0.263	-0.154	0.071	**0.836**	0.162	0.093	-0.034	0.140
SICS5	0.221	-0.123	0.062	**0.808**	0.189	0.103	-0.004	0.110
SICS6	0.177	-0.112	0.112	**0.852**	0.138	0.093	0.032	0.182
SICS7	0.103	-0.154	0.085	**0.646**	0.121	-0.021	-0.057	0.040
SICS8	0.137	-0.052	0.041	**0.821**	0.149	0.074	0.021	0.119
SICS9	0.166	-0.091	0.080	**0.799**	0.154	0.058	-0.051	0.097
GVP1	0.141	0.099	-0.026	0.166	**0.606**	0.121	0.187	0.105
GVP2	0.225	-0.023	0.166	0.243	**0.487**	0.154	0.177	0.235
GVP3	0.286	0.004	-0.319	0.121	**0.881**	0.257	0.301	0.309
GVP4	0.179	-0.008	-0.230	0.109	**0.828**	0.237	0.250	0.191
SEV1	0.329	-0.003	-0.171	0.056	0.225	**0.833**	0.299	0.317
SEV2	0.261	0.010	-0.059	0.113	0.153	**0.867**	0.265	0.287
SEV3	0.264	0.025	-0.162	0.115	0.243	**0.863**	0.314	0.288
SEV4	0.213	0.209	-0.096	0.116	0.231	**0.790**	0.333	0.212
SEV5	0.207	0.097	-0.129	0.058	0.175	**0.809**	0.334	0.244
SEV6	0.238	0.304	-0.129	0.051	0.183	**0.611**	0.384	0.123
SUS1	0.070	0.060	-0.191	0.068	0.273	0.356	**0.921**	0.161
SUS2	-0.042	0.122	-0.263	-0.007	0.277	0.420	**0.799**	0.083
SUS4	0.024	0.069	-0.256	-0.093	0.313	0.190	**0.695**	0.038
BI1	0.467	-0.145	0.042	0.159	0.330	0.184	0.163	**0.808**
BI2	0.501	-0.100	0.023	0.171	0.300	0.297	0.191	**0.872**
BI3	0.396	-0.092	0.000	0.166	0.293	0.358	0.190	**0.822**
BI4	0.285	-0.300	0.354	0.050	0.006	0.065	-0.098	**0.594**

Table 8.17e: Cross loading matrix for public listed company (n=114)

	ATT	FC	OEC	SICS	GVP	SEV	SUS	BI
ATT1	**0.865**	-0.248	0.123	-0.025	0.183	0.360	0.163	0.487
ATT2	**0.884**	-0.174	0.154	-0.123	0.128	0.262	0.058	0.409
ATT3	**0.873**	-0.186	0.209	-0.055	0.121	0.254	0.047	0.452
FC1	-0.105	**0.789**	-0.274	0.171	-0.081	-0.169	-0.077	-0.302
FC2	-0.330	**0.658**	-0.289	-0.084	-0.163	0.018	-0.122	-0.161
FC3	-0.119	**0.790**	-0.359	0.041	-0.143	-0.032	-0.079	-0.158
OEC1	0.058	-0.287	**0.786**	0.159	0.197	0.136	-0.105	0.312
OEC2	0.122	-0.381	**0.892**	0.272	0.154	0.179	-0.149	0.316
OEC3	0.236	-0.381	**0.869**	0.114	0.135	0.242	-0.033	0.415
OEC4	0.097	-0.245	**0.717**	0.131	0.186	0.025	-0.085	0.250
OEC6	0.136	-0.269	**0.710**	0.154	0.129	0.078	-0.142	0.340
SICS1	0.027	0.128	0.184	**0.591**	0.018	0.126	-0.078	0.086
SICS2	-0.021	0.175	0.209	**0.780**	-0.036	0.029	-0.085	-0.030
SICS3	-0.053	0.075	0.180	**0.870**	-0.086	-0.065	-0.237	-0.062
SICS4	0.030	0.025	0.269	**0.792**	-0.020	0.086	-0.173	0.026
SICS5	0.015	0.114	0.170	**0.852**	-0.015	0.013	-0.167	-0.056
SICS7	-0.132	-0.057	0.231	**0.623**	0.091	-0.057	-0.058	-0.065
SICS8	-0.051	0.108	0.224	**0.667**	0.053	-0.022	-0.117	0.046
GVP2	0.232	-0.205	0.366	0.104	**0.565**	0.190	0.113	0.283
GVP3	0.110	-0.083	0.025	-0.138	**0.859**	0.204	0.240	0.382
GVP4	0.018	0.102	-0.043	-0.121	**0.622**	0.143	0.213	0.115
SEV1	0.407	-0.249	0.164	-0.111	0.236	**0.837**	0.293	0.335
SEV2	0.316	-0.104	0.166	-0.131	0.269	**0.879**	0.268	0.320
SEV3	0.275	-0.043	0.100	-0.093	0.156	**0.839**	0.254	0.320
SEV4	0.249	-0.002	0.077	0.075	0.284	**0.780**	0.226	0.265
SEV5	0.230	-0.037	0.144	-0.025	0.224	**0.815**	0.198	0.330
SEV6	0.284	0.153	-0.001	0.099	0.066	**0.678**	0.205	0.198
SUS1	0.090	-0.148	-0.057	-0.097	0.175	0.221	**0.881**	0.238
SUS2	0.011	-0.033	-0.078	-0.065	0.300	0.405	**0.719**	0.220
SUS4	0.114	-0.074	-0.139	-0.210	0.309	0.162	**0.735**	0.182
BI1	0.458	-0.206	0.267	-0.062	0.312	0.183	0.178	**0.745**
BI2	0.515	-0.214	0.334	-0.084	0.344	0.303	0.220	**0.869**
BI3	0.401	-0.214	0.314	-0.023	0.412	0.323	0.339	**0.843**
BI4	0.338	-0.359	0.440	-0.138	0.244	0.247	0.132	**0.725**

Table 8.17f: Cross loading matrix for non-public listed company (n=191)

	ATT	FC	OEC	SICS	GVP	SEV	SUS	BI
ATT1	**0.941**	-0.138	-0.064	0.272	0.341	0.261	0.006	0.494
ATT2	**0.855**	-0.105	-0.102	0.309	0.350	0.364	0.092	0.482
ATT3	**0.853**	-0.136	0.000	0.304	0.314	0.266	0.023	0.456
FC1	-0.018	**0.767**	-0.039	0.005	-0.020	0.042	0.071	-0.185
FC2	-0.238	**0.756**	-0.002	-0.339	-0.026	0.076	0.165	-0.195
FC3	-0.194	**0.839**	-0.101	-0.169	-0.075	0.097	0.141	-0.185
OEC1	-0.062	-0.136	**0.929**	0.076	-0.194	-0.200	-0.206	-0.073
OEC2	-0.100	-0.046	**0.950**	0.069	-0.187	-0.183	-0.210	-0.119
OEC3	0.082	0.081	**0.552**	0.008	-0.235	-0.029	-0.194	-0.031
SICS1	0.270	-0.072	0.080	**0.793**	0.194	0.142	0.039	0.123
SICS2	0.219	-0.102	0.046	**0.817**	0.205	0.121	0.061	0.073
SICS3	0.258	-0.167	-0.011	**0.847**	0.210	0.137	0.077	0.154
SICS4	0.338	-0.210	0.012	**0.856**	0.246	0.133	0.045	0.165
SICS5	0.295	-0.131	0.027	**0.788**	0.273	0.150	0.035	0.118
SICS6	0.284	-0.120	0.100	**0.854**	0.199	0.127	0.030	0.144
SICS7	0.242	-0.159	0.096	**0.654**	0.178	0.036	-0.057	0.074
SICS8	0.270	-0.107	0.034	**0.814**	0.184	0.198	0.084	0.158
SICS9	0.264	-0.123	0.094	**0.786**	0.206	0.133	0.017	0.118
GVP1	0.267	0.072	-0.062	0.241	**0.723**	0.222	0.258	0.169
GVP2	0.201	0.066	0.051	0.337	**0.545**	0.155	0.185	0.210
GVP3	0.371	-0.029	-0.293	0.219	**0.873**	0.258	0.343	0.279
GVP4	0.259	-0.106	-0.195	0.122	**0.854**	0.295	0.333	0.263
SEV1	0.334	0.055	-0.201	0.140	0.265	**0.824**	0.285	0.361
SEV2	0.265	0.046	-0.072	0.208	0.144	**0.863**	0.221	0.324
SEV3	0.241	0.030	-0.166	0.154	0.335	**0.855**	0.375	0.291
SEV4	0.169	0.275	-0.107	0.072	0.216	**0.797**	0.389	0.230
SEV5	0.195	0.122	-0.136	0.041	0.189	**0.774**	0.410	0.217
SEV6	0.175	0.304	-0.155	0.000	0.223	**0.540**	0.479	0.088
SUS1	0.047	0.121	-0.139	0.143	0.328	0.404	**0.923**	0.136
SUS2	-0.063	0.175	-0.176	-0.034	0.252	0.422	**0.830**	0.048
SUS4	-0.010	0.117	-0.263	-0.063	0.343	0.230	**0.736**	0.026
BI1	0.464	-0.215	-0.138	0.189	0.319	0.234	0.133	**0.854**
BI2	0.497	-0.129	-0.168	0.181	0.326	0.350	0.174	**0.889**
BI3	0.405	-0.114	-0.181	0.150	0.258	0.361	0.129	**0.815**
BI4	0.248	-0.301	0.192	0.033	-0.018	0.019	-0.164	**0.528**

The formative indicators for each subgroup were then tested for indicator weight. Table 8.18 presents the indicator weights for each subgroup. The indicators with t-values that are not significant are not removed. This is due to the explanation by Bollen and Lennox (1991) that in a formative construct each indicator is part of the construct. Results of multicollinearity test are depicted in Table 8.19. The result indicates that all the VIF values are below the maximum threshold of 10 recommended by Klienbaum et al. (1998).

Table 8.18: Indicator weight for formative items according to subgroups

Construct	Item (Observed Variables)	Organizational Size			
		Company's Turnover ≤ RM100 Million (n=142)		Company's Turnover > RM100 Million (n=163)	
		Weight	t-Value	Weight	t-Value
Stakeholder Pressure	SHP1	0.2797	1.2275	0.5103	2.4530**
	SHP2	0.2912	1.7571*	-0.3128	1.1393
	SHP3	0.6058	2.4376**	0.0370	0.1307
	SHP4	0.3032	1.3865	0.5679	3.3175***
	SHP5	-0.3884	1.6568*	0.2523	1.0953
Construct	**Item (Observed Variables)**	**Organizational Industry Type**			
		Financial Services Company (n=49)		**Non-Financial Services Company (n=256)**	
		Weight	**t-Value**	**Weight**	**t-Value**
Stakeholder Pressure	SHP1	0.4251	1.7706*	0.3979	1.7338*
	SHP2	0.0047	0.0174	-0.0045	0.0250
	SHP3	0.2909	1.1302	0.4144	1.7654*
	SHP4	0.5820	3.3471***	0.2809	1.3347
	SHP5	-0.2566	1.1540	0.0248	0.1349
Construct	**Item (Observed Variables)**	**Organizational Type**			
		Public Listed Company (n=114)		**Non-Public Listed Company (n=191)**	
		Weight	**t-Value**	**Weight**	**t-Value**
Stakeholder Pressure	SHP1	0.1868	0.5915	0.4008	2.2033*
	SHP2	0.1720	0.8424	0.0874	0.4056
	SHP3	-0.0294	0.1373	0.2216	0.9445
	SHP4	0.9550	3.2180***	0.3114	1.9880*
	SHP5	-0.6081	1.8393*	0.1152	0.5206

Notes: ***p<0.001; **p<0.01; *p<0.05

Table 8.19: Results of multicollinearity tests according to subgroups

Item	Variation Inflation Factor (VIF)	
	Company Turnover ≤ RM100 million (n=142)	**Company Turnover > RM100 million (n=163)**
SHP1	3.780	3.595
SHP2	2.203	3.110
SHP3	4.416	6.000
SHP4	3.258	3.472
SHP5	4.019	5.846
	Financial Services Company (n=49)	**Non-Financial Services Company (n=256)**
SHP1	3.175	3.677
SHP2	1.580	2.983
SHP3	2.398	7.799
SHP4	2.981	3.391
SHP5	1.918	7.748
	Public Listed Company (n=114)	**Non-Public Listed Company (n=191)**
SHP1	3.323	3.837
SHP2	2.380	2.565
SHP3	4.432	4.854
SHP4	2.797	3.775
SHP5	4.147	4.687

Hypothesis testing commenced once the measurement model was assessed and adjusted. The results of the hypothesis testing are displayed in Table 18.20a, 18.20b, and 18.20c.

Table 8.20a: Hypothesis testing for company size subgroup

Path	Turnover ≤ RM100 Million (m=142)		Turnover > RM100 Million (n=163)	
	Standardized Path Coefficient	t-Value	Standardized Path Coefficient	t-Value
Financial Cost (FC) → Behavioral Intention (BI)	-0.230	2.969**	-0.224	2.686**
Organizational Ethical Climate (OEC) → Behavioral Intention (BI)	0.139	1.595	0.107	1.573
Strength of Internal Control System (SICS) → Behavioral Intention (BI)	-0.047	0.612	0.012	0.169
Government Pressure (GVP) → Behavioral Intention (BI)	-0.061	0.717	0.179	2.834**
Attitude (ATT) → Behavioral Intention (BI)	0.209	2.354**	0.155	1.959*
Stakeholder Pressure (SHP) → Behavioral Intention (BI)	0.440	4.926***	0.335	3.513***
Perceived Severity (SEV) → Behavioral Intention (BI)	0.072	0.905	0.093	1.224
Perceived Susceptibility (SUS) → Behavioral Intention (BI)	0.053	0.665	0.146	2.007*
R^2	51.2%		49.5%	

Notes: ***p<0.001; **p<0.01; *p<0.05

Table 8.20b: Hypothesis testing for industry type subgroup

Path	Financial Services Company (m=49)		Non-Financial Services Company (n=256)	
	Standardized Path Coefficient	**t-Value**	**Standardized Path Coefficient**	**t-Value**
Financial Cost (FC) → Behavioral Intention (BI)	-0.309	2.880**	-0.197	4.078***
Organizational Ethical Climate (OEC) → Behavioral Intention (BI)	0.114	0.856	0.139	1.312
Strength of Internal Control System (SICS) → Behavioral Intention (BI)	0.003	0.021	-0.060	1.049
Government Pressure (GVP) → Behavioral Intention (BI)	-0.050	0.350	0.087	1.612
Attitude (ATT) → Behavioral Intention (BI)	-0.005	0.045	0.212	2.944**
Stakeholder Pressure (SHP) → Behavioral Intention (BI)	0.246	3.090**	0.395	5.364***
Perceived Severity (SEV) → Behavioral Intention (BI)	0.214	1.504	0.071	1.264
Perceived Susceptibility (SUS) → Behavioral Intention (BI)	0.240	1.634	0.041	0.608
R^2	63.4%		45.7%	

Notes: ***p<0.001; **p<0.01; *p<0.05

Table 8.20c: Hypothesis testing for organizational type subgroup

Path	Listed Company (m=114)		Non Listed Company (n=191)	
	Standardized Path Coefficient	**t-Value**	**Standardized Path Coefficient**	**t-Value**
Financial Cost (FC) → Behavioral Intention (BI)	-0.089	1.185	-0.236	4.117***
Organizational Ethical Climate (OEC) → Behavioral Intention (BI)	0.259	3.784***	-0.100	1.427
Strength of Internal Control System (SICS) → Behavioral Intention (BI)	-0.018	0.165	-0.083	1.369
Government Pressure (GVP) → Behavioral Intention (BI)	0.103	1.786*	0.011	0.167
Attitude (ATT) → Behavioral Intention (BI)	0.219	2.976	0.194	1.996*
Stakeholder Pressure (SHP) → Behavioral Intention (BI)	0.396	3.998***	0.416	4.940***
Perceived Severity (SEV) → Behavioral Intention (BI)	-0.078	0.983	0.160	2.795**
Perceived Susceptibility (SUS) → Behavioral Intention (BI)	0.183	2.775**	-0.022	0.306
R^2	56.8%		47.3%	

The statistical analysis shows that there are differences between the subgroups. The objective is then to determine whether the differences are significant or not. First, the data was tested using the Kolmogrov-Smirnov test of normality in Section 7.4. The result proves that the data are not distributed normally. Therefore, the Smith-Satterthwaite t-test, which is utilized in data that violate the normal distribution, is chosen. The equation for Smith-Satterthwaite t-test is depicted in Equation 3. Thereafter, the results of the t-tests for each subgroup are detailed in Table 18.21a, 18.21b, and 18.21c.

Equation 3

$$t = \frac{Path_{sample\_1} - Path_{sample\_2}}{\sqrt{S.E._{sample\_1}^{2} - S.E._{sample\_2}^{2}}}$$

Where *S.E* = standard errors for structural path and degree of freedom = m + n - 2

The Smith-Satterthwaite test found significant support for the moderating factors of organizational type and organizational size as presented in Table 18.21a, 18.21b, and 18.21c.

Table 8.21a: Results of Smith-Satterthwait test for company size subgroup

Path	Turnover ≤ RM100 Million		Turnover > RM100 Million		
	Standardized Path Coefficient	SE from Bootstrap	Standardized Path Coefficient	SE from Bootstrap	t-Statistic (2 tailed)
Financial Cost (FC) → Behavioral Intention (BI)	-0.2300	0.0775	-0.224	0.0834	-0.0527
Organizational Ethical Climate (OEC) → Behavioral Intention (BI)	0.1390	0.0871	0.107	0.0680	0.2896
Strength of Internal Control System (SICS) → Behavioral Intention (BI)	-0.0470	0.0768	0.012	0.0709	-0.5645
Government Pressure (GVP) → Behavioral Intention (BI)	-0.0610	0.0851	0.179	0.0632	-2.2641**
Attitude (ATT) → Behavioral Intention (BI)	0.2090	0.0888	0.155	0.0791	0.4541
Stakeholder Pressure (SHP) → Behavioral Intention (BI)	0.4400	0.0901	0.335	0.0954	0.8002
Perceived Severity (SEV) → Behavioral Intention (BI)	0.0720	0.0796	0.093	0.0760	-0.1908
Perceived Susceptibility (SUS) → Behavioral Intention (BI)	0.0530	0.0797	0.146	0.0722	-0.8648

Notes: ***p<0.001; **p<0.01; *p<0.05

Table 8.21b: Results of Smith-Satterthwait test for industry type subgroup

Path	Financial Services Company		Non-Financial Services Company		
	Standardized Path Coefficient	SE from Bootstrap	Standardized Path Coefficient	SE from Bootstrap	t-Statistic (2 tailed)
Financial Cost (FC) → Behavioral Intention (BI)	-0.3090	0.1073	-0.1970	0.0483	-0.9518
Organizational Ethical Climate (OEC) → Behavioral Intention (BI)	0.1140	0.1332	0.1390	0.1059	-0.1469
Strength of Internal Control System (SICS) → Behavioral Intention (BI)	0.0030	0.1448	-0.0600	0.0572	0.4047
Government Pressure (GVP) → Behavioral Intention (BI)	-0.0500	0.1430	0.0870	0.0540	-0.8963
Attitude (ATT) → Behavioral Intention (BI)	-0.0050	0.1108	0.2120	0.0720	-1.6422
Stakeholder Pressure (SHP) → Behavioral Intention (BI)	0.2460	0.1489	0.3950	0.0736	-0.8971
Perceived Severity (SEV) → Behavioral Intention (BI)	0.2140	0.1423	0.0710	0.0562	0.9347
Perceived Susceptibility (SUS) → Behavioral Intention (BI)	0.2400	0.1468	0.0410	0.0674	1.2319

Notes: ***p<0.001; **p<0.01; *p<0.05

Table 8.21c: Results of Smith-Satterthwait test for organizational type subgroup

Path	Public Listed Company		Non-Public Listed Company		
	Standardized Path Coefficient	SE from Bootstrap	Standardized Path Coefficient	SE from Bootstrap	t-Statistic (2 tailed)
Financial Cost (FC) → Behavioral Intention (BI)	-0.0890	0.0751	-0.2360	0.0573	1.5562
Organizational Ethical Climate (OEC) → Behavioral Intention (BI)	0.2590	0.0684	-0.1000	0.0701	3.6654***
Strength of Internal Control System (SICS) → Behavioral Intention(BI)	-0.0180	0.1088	-0.0830	0.0606	0.5219
Government Pressure (GVP) → Behavioral Intention (BI)	0.1030	0.0577	0.0110	0.0657	1.0521
Attitude (ATT) → Behavioral Intention (BI)	0.2190	0.0736	0.1940	0.0972	0.2051
Stakeholder Pressure (SHP) → Behavioral Intention (BI)	0.3960	0.0990	0.4160	0.0842	-0.1539
Perceived Severity (SEV) → Behavioral Intention (BI)	-0.0780	0.0794	0.1600	0.0573	-2.4306**
Perceived Susceptibility (SUS) → Behavioral Intention (BI)	0.1830	0.0660	-0.0220	0.0719	2.1004**

Notes: ***p<0.001; **p<0.01; *p<0.05

Organizational size was divided into two categories based on turnover of RM100 million or less and more than RM100 million. The significant difference in path coefficients was government pressure to behavioral intention. In companies with higher revenue, government pressure had a significantly higher influence on intention to use forensic accounting services.

Organizational type was categorized as public listed and non-public listed companies. There were significance differences in three path coefficients in the two organizational type subgroups. These are organizational ethical climate to behavioral intention, perceived severity to behavioral intention and perceived susceptibility to behavioral intention. In listed companies, perceived susceptibility and ethical climate had a significantly higher influence on intention. However, in non-public listed companies the influence of perceived severity on intention was significantly higher.

Industry type was categorized into financial services company and non-financial services company. However, the Smith-Satterthwaite test revealed that there were no significant differences between the two subgroups for industry type. This indicates that there is a shared similarity among industry types on the behavioral intention model.

The overall results or hypothesis 16 shows that H16a and H16b are accepted whilst H16c is rejected.

Table 8.22: Summary of contextual factors hypothesis testing

Hypothesis	Outcome
H16a: Organizational size has a significant moderating effect on the relationship between behavioral intention to use forensic accounting services and its immediate antecedents.	Supported
H16b: Industry type has a significant moderating effect on the relationship between behavioral intention to use forensic accounting services and its immediate antecedents.	Not Supported
H16c:Organizational type has a significant moderating effect on the relationship between behavioral intention to use forensic accounting services and its immediate antecedents.	Supported

8.5 Summary

This chapter described the evaluation and adjustment of the measurement model to achieve convergent validity, discriminant validity and indicator weight for the 75 item instrument. The results of structural model assessment were detailed. The explanatory power of the conceptual model on large Malaysian companies' intention to use forensic accounting services was 45.5%, with all the R^2-values of the endogenous constructs were above the requirement recommended by Santosa, Wei, and Chan (2005).

Thirteen of the twenty hypotheses were supported and five constructs were identified to directly influence behavioral intention. These are attitude towards forensic accounting services, financial cost, organizational ethical climate, stakeholder pressure, and perceived severity of fraud. In addition, the moderating effect of organizational size and organizational type on the relationship between behavioral intention to use forensic accounting services and its immediate antecedents were confirmed. The next chapter discusses these results. Both practical and theoretical implications of the quantitative analysis will be examined.

CHAPTER 9

RESULTS, INTERPRETATION, AND DISCUSSION

9.1 Introduction

The integrated conceptual model derived from the literature review and field study analysis substantiated the need for twenty hypotheses. The previous chapter detailed the results of the hypotheses testing whereby thirteen of the hypotheses were supported. In this chapter, the accepted hypotheses are discussed in detail to describe the implications of each finding. The significant relationships are linked with practical propositions that could serve as guidelines on implementing effective measures to increase the use of forensic accounting services by large Malaysian companies. Theoretical implications of these results as well as its impact on current research gaps are also highlighted. In addition, the possible explanations for the rejected hypotheses are analyzed.

9.2 Interpretation and Discussion of Data Analysis Results

The conceptual model for this research has six endogenous constructs. The results reveal that the explanatory power of all the endogenous constructs in the model exceeds the minimum R^2. The overall model explains 45.5% of the variance of large Malaysian companies' intention to use forensic accounting services for fraud detection and prevention. The results of hypotheses testing as portrayed in Figure 9.1 finds thirteen hypotheses to be statistically significant.

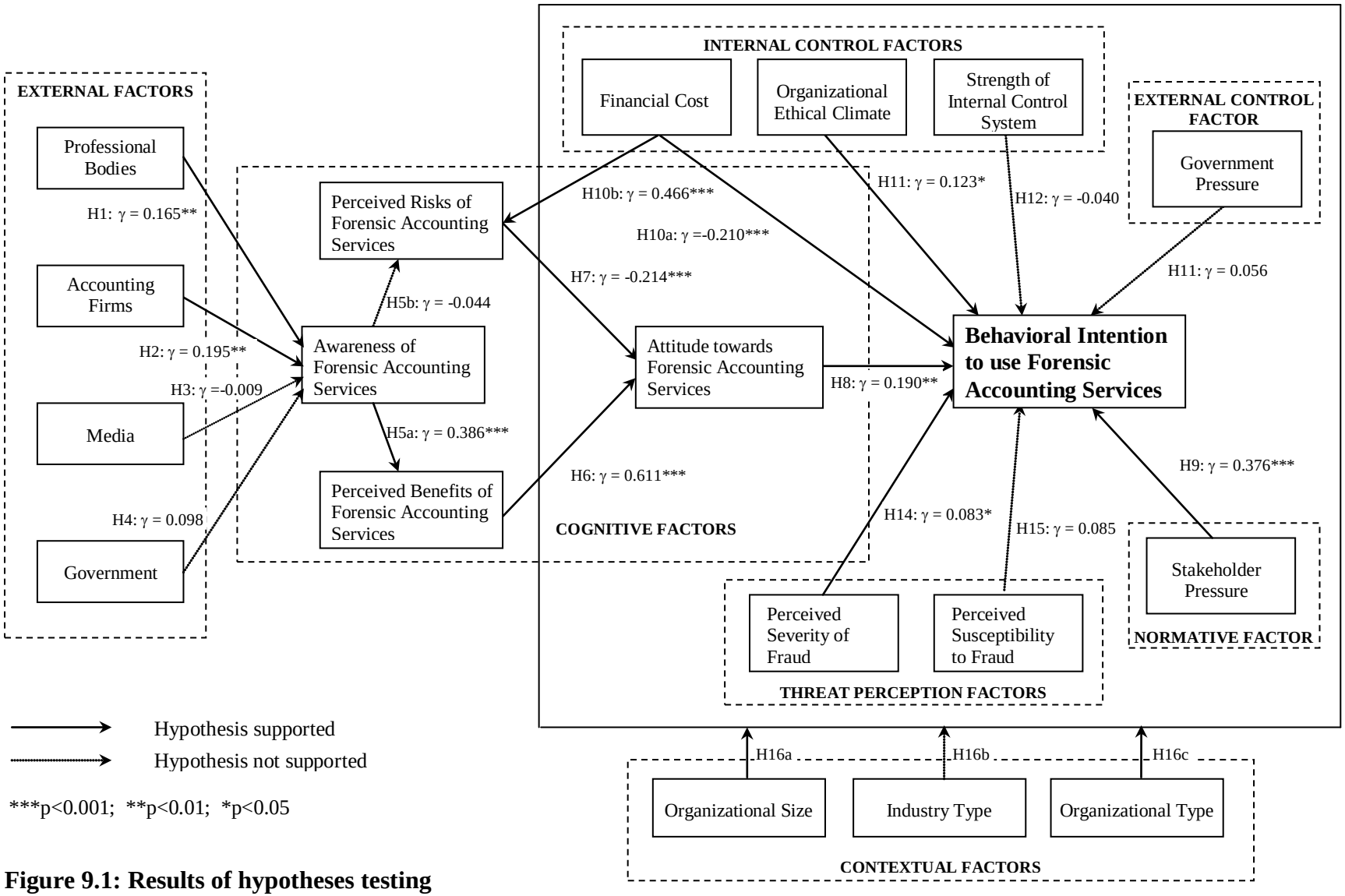

Figure 9.1: Results of hypotheses testing

Based on these findings, the application of Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Health Belief Model (HBM), and Hierarchy of Effects Model (HOE) as the theoretical underpinning of the proposed conceptual model is supported.

9.2.1 Hypotheses Relating to External Factors

The literature review identified four external factors that could potentially increase the awareness of forensic accounting services. The influence of each factor was explored through hypotheses H1, H2, H3, and H4. The results of hypotheses testing are discussed in detail in the following section.

9.2.1.1 Hypothesis H1

This study posited through hypothesis H1 that activities of professional bodies would have a positive influence on awareness of forensic accounting services. The results of hypothesis testing indicated that there is significant statistical evidence to support the positive influence of professional bodies' activities. This finding is consistent with previous results from innovation adoption studies by Newell and Clark (1990), Swan and Newell (1994, 1995), Swan, Newell, and Robertson (2000), Damanpour and Schneider (2006), and Doolin and Troshani (2007) which found the activities of professional bodies to positively influence the adoption of an innovation.

The result is also in accordance to the study by Weaver, Trevino, and Cochran (1999) which revealed professional bodies significantly influenced organizational ethical decision-making. In addition, the finding aligns with the study by Satish and Rau (2009) which reported that conferences, workshops and seminars organized by financial professional bodies was the major influence on banking organizations' source of information for new tools of corporate financial performance. This result is also in congruence with field study findings whereby 90% of the firms agreed upon the key role of professional bodies in increasing their awareness of forensic accounting services. Therefore, this study confirms professional bodies as an important factor that influences awareness of forensic accounting services.

The practical implication of this finding is that professional bodies in Malaysia such as MIA, MAICPA, and ACFE, in seeking to increase use of forensic accounting services, should intensify their role in increasing awareness of these services to their members. Members of professional bodies who engage in professional development activities are able to learn about forensic accounting services and then disseminate this acquired knowledge internally within their own organization (Aldrich 1979; Tushman and Scanlan 1981; Swan and Newell 1995). Hence, professional bodies need to ensure their members are actively involved in seminars, conferences, workshops, courses and discussion forums related to forensic accounting services. More importantly, professional bodies need to remember that the key consideration in organizing these awareness campaigns is in ensuring the quality and relevancy of the information that is disseminated (Swan and Newell 1995).

In the U.S., two leading professional bodies, the AICPA and ACFE have combined forces to cooperate on several projects including joint presentations and establishing the Institute of Fraud Prevention. These projects focus on providing vital information on effective anti-fraud methods including forensic accounting services to organizations. Similar to the U.S., professional bodies in Malaysia can collaborate and work on effectual projects that could increase organizational awareness of forensic accounting services. In addition, increased cooperation could create more powerful networks and the dissemination of information on forensic accounting services could reach a larger number of organizations. Professional bodies in Malaysia could also collaborate with comparable active bodies in U.S. towards promoting the use of forensic accounting services.

In response to the spate of accounting scandals at Enron, Worldcom, Adelphia and Tyco, the AICPA in the U.S. had issued the Statement on Audit Standard No. 99 (SAS 99). This new standard requires auditors to use forensic methods and techniques in collecting evidence and recommends auditors to assign forensic specialists if there is risk of fraud (Sacks 2004). In addition, the SAS 99 requires auditors to determine whether management has designed effective fraud prevention and detection methods in their organization. The current Malaysian Audit Standard (MAS) issued by MIA and MAICPA could be upgraded in alignment with SAS 99.

The new MAS would indirectly ensure that auditors provide organizations with imperative information on the importance of engaging forensic accounting services in fraud detection and prevention.

9.2.1.2 Hypothesis H2

Rogers (1995) in the diffusion on innovation theory contended that marketing activities by vendors are integral in creating awareness of an innovation and this subsequently determines adoption decision. This study decided to test the arguments raised by Rogers (1995) through hypothesis H2 on the positive influence of accounting firms' promotional activities on raising organizational awareness of forensic accounting services.

Statistical evidence indicate the significant positive impact of accounting firms' promotional activities on large companies' awareness of forensic accounting services. The findings are consistent with results of previous innovation adoption studies which suggest the significant influence of service providers or vendors in increasing the intention to adopt (Hultink et al. 1977; Newell and Swan 1994; Frambach et al. 1998; Dash 2001; Doolin and Troshani 2007; Lee and Shim 2007; Lee and Larsen 2009). The results are also in accordance to Swan, Newell and Robertson's (2000) findings across four European countries which indicated that the promotional activities by technology providers play a key role in the diffusion process of an innovation. Furthermore, the results are similar to Quaddus and Hofmeyer's (2007) study which reported on the significant direct influence of vendor activities on awareness. The field study analysis also revealed that 70% of the participants agreed accounting firms raised their awareness of forensic accounting services. Therefore, as hypothesized in the study, accounting firm's promotion is vital in raising the awareness of forensic accounting services and provides the basis for increasing the use of these services in fraud detection and prevention.

The practical implication is that accounting firms, as the major providers of forensic accounting services could play a greater role in promoting these services among large companies to raise their awareness. The increased awareness would stimulate

and accelerate the intention to use forensic accounting services for fraud detection and prevention. Accounting firms could improve their fraud survey reports and white papers by providing more detailed information in these widely read publications on the imperative role of forensic accounting services in mitigating fraud. The accounting firms could also design pamphlets and websites that specifically focus on forensic accounting services. Additionally, to avoid generic messages on forensic accounting services, more focused message could be tailored to target specific industries. Workshops, seminars and courses could be conducted for a particular type of industry. Accounting firms could also target specific problems faced by organizations (such as computer fraud) and actively endorse the latest forensic solutions. These targeted efforts would ensure that more organizations become aware forensic accounting services.

According to Swan and Newell (1995), the higher the status of organizational member, the more impactful is the communication of knowledge of a new service. Hence, accounting firms should focus on raising the awareness of organizational decision makers such as chief financial officers (CFO), chief executive officers (CEO), audit committees and board of directors. When these decision makers are aware of forensic accounting services and see these services in a favorable light they will expedite their companies' intention to use forensic accounting services.

9.2.1.3 Hypothesis H3

The field study analysis prompted the inclusion of media in the conceptual model as influencing awareness of forensic accounting services. Results of hypotheses testing did not statistically support this link and H3 was rejected. The finding on media's lack of contribution aligns with Satish and Rau's (2009) study which reported that only 6.7% of banking organizations' source of information for new tools of corporate financial performance comes from newspapers.

The finding suggests that perceptions from a small group of participants is not consistent with the larger population, a flaw of the mixed method research experienced by Quaddus, Islam and Stanton (2006) and Jackson (2008). Although

seven out of ten interview participants supported the inclusion of media, the statistical evidence from the national survey indicates this perception from a small sample cannot be generalized to other organizations.

One possible explanation for the rejection of the hypothesis is that media is not perceived as being a reliable source of information by Malaysian organizations. As argued by Rogers (1995), information obtained from peers in social and organizational networks (for example from professional bodies) has an increased weight compared to information obtained from objective sources such as from the media. In addition, the results support Dewar and Dutton's (1986) assertion that whilst awareness of innovations that are concerned with public consequences may be influenced by media, for an organization, familiarity of an innovation is primarily sourced from the providers of the innovation. Therefore, professional bodies and accounting firms may be perceived to be a more influential source of information on forensic accounting services compared to media.

Another possible explanation is the lack of media coverage in Malaysia on the role and significance of forensic accounting services in fraud detection and prevention. Close scrutiny of the recent media news on forensic accounting services in Malaysia indicates that media reports only mention the engagement of forensic accounting services in high profile fraud cases such as Sime Darby Bhd, Bumiputra-Commerce Holdings Bhd, Alliance Financial Group Bhd, Petra Perdana Bhd, Transmile Group Bhd, Megan Media Holdings Bhd and Liqua Health Corp Bhd (Errol 2010). The reports did not elaborate on the role of forensic accounting services in aiding the investigations and the detailed outcome of the investigations. Therefore, the CFO's may have felt that they did not become familiar of forensic accounting services' role and importance in fraud detection and prevention through the media.

9.2.1.4 Hypothesis H4

The field study participants perceived the role of government influence on increasing awareness of forensic accounting services. The qualitative findings impelled the inclusion of this construct in the conceptual model. However, the statistical evidence

did not support hypothesis H4. This indicates that the Malaysian government does not play a significant role in creating awareness of forensic accounting services amongst large Malaysian companies. Although the interview participants supported the inclusion of government as an external factor, the statistical analysis from the national survey indicates this perception from a small sample cannot be applied to a larger population. This irregularity in qualitative and quantitative findings in a mixed method study was also experienced by Quaddus, Islam and Stanton (2006) and Jackson (2008).

This finding aligns with evidence provided by Chau and Hui (2001) that government influence does not significantly affect the adoption of an innovation. Furthermore, the finding is consistent with Quaddus and Hofmeyer's (2007) study which reported that government as an external factor did not have a significant direct influence on awareness. The finding is also in accordance with the study by Satish and Rau (2009) which stated that government agencies were not perceived as banking organizations' source of information for increasing awareness on new tools of corporate financial performance.

The finding in the present study was surprising given the concentrated involvement of government specifically the Malaysian Security Commissions in mitigating fraud. They have introduced various policies to combat fraud and have emphasized the use of forensic accounting services in fraud detection and prevention. These initiatives should have elevated the awareness of forensic accounting services amongst large companies in Malaysia. However, the contrary results indicate that these strategic activities are insufficient.

One possible explanation is that the dissemination of information from the Malaysian Securities Commission is limited to public listed companies. Private companies are not under the regulation of this commission and thus do not directly receive information from them. Furthermore, the requirements of the Securities Commission for public companies to implement measures such as strengthened internal control system and risk assessment leading towards the utilization of forensic accounting services is not made compulsory across all Malaysian companies. The majority of the sample for this study comprises of private companies (62.6%). The public companies

may perceive the positive influence of government on awareness but the private companies may not. Therefore, the results of hypothesis testing may be confounded by the perceptions of the private companies and the overall indication is that government emphasis on forensic accounting services could not significantly elevate large companies' awareness of forensic accounting services.

9.2.2 Hypotheses Relating to Cognitive Factors

Cognitive factors in the conceptual model were derived through the integration of theories. This study contends that awareness from HOE is the direct predecessor of both perceived benefits and perceived risks from HBM. The final research model also argues that perceived benefits and risks are direct determinants of attitude from the TRA/TPB. In alignment with TRA/TPB, this study modeled attitude towards forensic accounting services as the antecedent of intention to use forensic accounting services. The influences of the cognitive factors were explored through hypotheses H5a, H5b, H6, H7, and H8. The results of hypotheses testing are discussed in the following section.

9.2.2.1 Hypothesis H5a

Hypothesis H5a investigated the positive influence of awareness of forensic accounting services on perceived benefits of using forensic accounting services. The statistical evidence supports this link and H5a was accepted. The finding is consistent with results from studies by Goodhue and Straud (1991) and Dinev and Hu (2007) who reported on the positive influence of awareness in increasing innovation adoption. In addition, the result aligns with the findings of studies in disease prevention which report the significant influence of awareness on intention to engage in protective behavior (Carlson, Charlin, and Miller 1988; Carleton et al. 1996). The finding is also similar to Hofmeyer's (2005) study which documented that awareness is a significant positive influence on perceived benefits. Qualitative analysis of field study interviews indicated that all the participants agreed upon the link between awareness and perceived benefits. Hence, as hypothesized in the study, awareness of

forensic accounting services is an important prerequisite towards the formation of perceived benefits of forensic accounting services.

The theoretical implication is that HOE and HBM can be successfully incorporated into an organizational ethical decision-making model. Awareness from HOE significantly influences perceived benefits, a HBM construct. Therefore, the amalgamation of theories is an expedient approach towards investigating behavioral intention. The practical implication is that greater emphasis should be placed on increasing awareness of forensic accounting services amongst large companies so that they can perceive the benefits of these services. Accounting firms need to understand that the successful promotion of a credence service requires intensive measures that provide in depth information of the services (Mitra, Reiss, and Capella 1999). The message communicated must be accurate, consistent and relevant to be able to convince organizations. Furthermore, to reassure organizations of their credibility, the accounting firms could also provide information on the qualifications, experience and expertise of their forensic personnel.

9.2.2.2 Hypothesis H5b

Hypothesis H5b tested the negative influence of awareness of forensic accounting services on perceived risks of using forensic accounting services. Although 90% of the field study participants supported the link between awareness and perceived risks, there were no specific studies identified in the literature that has examined this link. Statistical analysis of the relationship between awareness and perceived risks indicated the hypothesized negative direction. However, the influence of awareness on perceived risks was not statistically significant. This result implies that even when large companies were aware of forensic accounting services their beliefs on the risks of acquiring these services were not significantly reduced. As suggested by Quaddus, Islam, and Stanton (2006) and Jackson (2008), the lack of statistical support is due to the discrepancy in mixed method studies where qualitative findings from a small number of field study participants does not align with quantitative findings from a larger population.

One explanation for the lack of statistical evidence is that the CFO's felt the risks involved in acquiring forensic accounting services is still too high due to forensic accounting services being a credence service that cannot be evaluated prior to purchase. The unpredictability and non-standardized nature of credence services leads to heightened risks due to lack of knowledge and information of the actual cost and product performance (Murray and Schlater 1990). Hence, the risks involved in acquiring forensic accounting services cannot be easily assuaged by increased awareness of the services. Furthermore, the higher perceived risks associated with credence services increases information search on the services by consumers (Mitra, Reiss, and Capella 1999). According to marketing studies, consumers tend to rely on personal sources of information such as product related conversations or word of mouth when the magnitude of perceived risks of services is increased (Midgley 1983; Mitra, Reiss, and Capella 1999). However, the current low usage of forensic accounting services in Malaysia suggests that there are limited word of mouth success stories to substantially reduce the risks of acquiring the services.

9.2.2.3 Hypothesis H6 and H7

By integrating HBM and TRA the present study modeled perceived benefits and perceived risks as important determinants of attitude towards forensic accounting services. Therefore, the positive influence of perceived benefits on attitude is inferred by hypothesis H6 whilst the negative influence of perceived risks to attitude is posited by hypothesis H7.

The findings of the PLS analysis supports the statistical significance of the positive influence of perceived benefits on attitude. The results reaffirm the findings of past studies in innovation adoption and ethical decision-making (Featherman and Pavlou 2003; Hofmeyer 2005; Stevens et al. 2005). Furthermore, past HBM studies have also acquired similar results (Vanlandingham et al. 1995; Wulfert and Wan 1995; Savage and Clarke 2001; Roden 2004; Ham 2005; McClenahan et al. 2007). The findings are also in alignment with the qualitative field study whereby all of participants agreed upon the influence of perceived benefits on attitude. The result imply that forensic accounting services is likely to be employed by large companies

who have formed a positive attitude towards forensic accounting services based on the companies' perceptions on the benefits of the services. However, since forensic accounting services is a relatively new field especially in Malaysia, many companies may still be unacquainted with the various benefits of forensic accounting services in fraud detection and fraud prevention.

Perceived risks of forensic accounting services is the uncertainty involved in using forensic accounting services in fraud detection and prevention. The PLS analysis confirmed that perceived risks is a significant negative influence on attitude towards forensic accounting services. This is in congruence with both field study and literature review findings. 90% of field study participants agreed that perceived risks of forensic accounting services negatively would influence their attitude. The finding is also consistent with past research on innovation adoption and ethical decision-making studies (Tan 2002; Heijden, Verhagen, and Creemers 2003; Lu, C. Hsu and H. Hsu 2005; Gewald, Wullenweber and Weitzel 2006; Matos, Ituassu, and Rossi 2007). Empirical studies using HBM have also yielded similar results (Wulfert and Wan 1995; Vanlandingham et al. 1995; Savage and Clarke 2001; Lajunen and Rasanen 2004; Wang 2005; Roden 2004; Ham 2005; Gooding et al. 2006; McClenahan et al. 2007). The result indicates that companies' with increased perceptions on the risks of using forensic accounting services would more likely not use these services.

The overall significance of both H6 and H7 attests the importance of both perceived benefits and perceived risks as direct antecedents of attitude. These results support the appropriateness of combining HBM and TRA/TPB in forming the conceptual model for this study. One theoretical implication is that future studies which integrate HBM and TRA/TPB need not omit either perceived benefits/risks or attitude. Instead, valuable information could be gathered if all three constructs are included in the conceptual framework and perceived benefits/risks are modeled as direct antecedents of attitudes.

The results also reaffirm the importance of cost-benefit considerations as repeatedly acknowledged by field study participants towards the formation of attitude. The practical implication is that the various stakeholders of forensic accounting services

(especially professional bodies and accounting firms) must focus their endeavor in extolling the benefits of forensic accounting services whilst concurrently mitigating the risks involved in using these services, should they wish to increase usage.

One key initiative would be to highlight to organizational decision makers, in particular those without accounting background, the difference between financial and fraud audits. Organizations must be made aware of the audit 'expectation gap' created by financial audits and subsequently be informed on the applicability of fraud audits. The field study participants indicated that organizations' viewed the major role of forensic accounting services is for fraud investigations. Hence the focus should also be on promoting forensic accounting services as an effectual fraud deterrence method. More importantly, the utility of forensic accounting services towards implementing a successful fraud prevention program should be emphasized.

One major misconception of organizations is that acquiring forensic accounting services is a social risk because people might view their company as having serious problems. However, it should be emphasized to organizations that acquiring forensic accounting services for fraud investigations is more often perceived positively as it shows that the organization is serious in mitigating fraud. In addition, incorporating forensic accounting services in fraud prevention programs would incrementally enhance the organizations' image. Organizations can also be made aware of the positive link between image and economic gains (Fombrum and Shanley 1990). As suggested by Stevens et al. (2005) when organizations are convinced of the economic benefits of an enhanced image, they will consistently decide to utilize strategies that will improve their company's image.

Accounting firms could also highlight success stories of forensic accounting investigations in websites and pamphlets. These stories would provide substantial evidence on the perceived benefits of forensic accounting services and reduce the performance risk associated with forensic accounting services. In addition, to assuage the risks associated with leakage of sensitive information, service providers can sign a prior agreement with organizations on the confidentiality of their investigations. The overall focus all these initiatives should be towards ensuring that

the perceived benefits of forensic accounting services would outweigh the perceived risks and a positive attitude towards forensic accounting services could be formed.

9.2.2.4 Hypothesis 8

The theoretical framework of TRA/TPB details that attitude is the direct antecedent of intention. Therefore, hypothesis H8 investigated the positive influence of attitude towards forensic accounting services on the behavioral intention to use forensic accounting services. The quantitative findings support TRA's and TPB's emphasis on the importance of attitude as a determinant of behavioral intention. This result is in line with previous results from ethical decision-making studies (Randall and Gibson 1991; Kurland 1996; Flannery and May 2000; Buchan 2005: Carpenter and Reimers 2005) and protective behavior research (Michels et al. 1995; Vanlandingham et al. 1995; Quine, Rutter, and Arnold 1998; Wulfert and Wan 1995; Poss 2001; Lajunen and Rasanen 2004; Wang 2005). The findings reinforce field study data which supported the link between attitude and behavioral intention.

The implication is that companies that have formed positive attitudes towards forensic accounting services are more likely to have the intention to use forensic accounting services in fraud detection and prevention. In practice, forensic accounting services stakeholders including professional bodies and accounting firms must reassess the various activities they are currently utilizing and intensify their effort on promoting positive attitudes towards forensic accounting services amongst large companies.

9.2.3 Hypotheses Relating to Normative Factor

TRA and TPB contend that the perceptions of significant others (the normative factor) is a direct predecessor of intention. Hill and Jones (1992) in the theory on stakeholders' management argued that decision-making at the organizational level is to a large extent influenced by what stakeholders think the organization should do. As a result, this study tested the hypothesis that the positive influence of

organizational stakeholders' as a normative factor affects the organizations' intention to use forensic accounting services.

9.2.3.1 Hypothesis H9

Hypothesis H9 examined the positive influence of stakeholder pressure on the intention to use forensic accounting services. The empirical results confirm that the opinions of stakeholders have a significant positive impact on the decision-making process of acquiring forensic accounting services. Therefore, the theory on stakeholders' management was supported by the findings of this study. The quantitative results are in line with numerous studies on ethical decision-making (Gibson and Frakes 1997; Cordano and Frieze 2000; Carpenter and Reimers 2005; Gillet and Uddin 2005) and protective behavior research (Vanlandingham et al. 1995; Wulfert and Wan 1995; Cordano and Frieze 2000; Poss 2001; Savage and Clarke 2001; Lajunen and Rasanen 2004; Ham 2005; Simsekoglu and Lajunen 2008) which reported on the significant influence of normative factors. The results are also aligned to the findings of Stevens et al. (2005), who similar to this study adapted a conceptual model with stakeholder pressure as the normative factor. In addition, 70% of field study participants agreed on the influence of this construct on intention to use forensic accounting services. The overall finding indicates that the views of organizational stakeholders are integral in organizational decision-making process relating to the implementation of forensic accounting services.

Based on the above significant relationship, it can be inferred that shareholders, board of directors, bankers, suppliers, and customers can influence organizations' decision to acquire forensic accounting services to protect their own interests in the organization. The practical implication of this finding is that organizational stakeholders should expand their role in protecting their investment and interest in the company. Board of directors could decide to use forensic accounting services to ensure the successful implementation of fraud prevention and detection strategies, including the establishment of an effective corporate governance structure in compliance to regulations. In addition, shareholders should demand all large companies to utilize forensic accounting services to mitigate fraud from eroding their

share values. Moreover, customers, suppliers, and even lenders can to some degree apply pressure and insist the use of forensic accounting services in fraud detection and prevention when it is in their best interest. However, since forensic accounting services is relatively new, accounting firms should also focus on providing information on the vital role of these services in fraud detection and prevention to organizational stakeholders.

9.2.4 Hypotheses Relating to Internal Control Factors

The present study argued that at the organizational level, control factors, a key element of TPB can to a large extent influence organizational decision-making. Based on literature support, financial cost, organizational ethical climate, and strength of the internal control system were identified as internal control factors and their influences were tested through H10, H11, and H12. Additionally, H13 tested the influence of government pressure, the solitary external control factor identified through the literature review.

9.2.4.1 Hypothesis H10a and H10b

The present study argued that in Malaysia, financial cost is a focal consideration in acquiring forensic accounting. In addition, financial cost could also positively influence the perceived risks of acquiring forensic accounting services. Therefore, two sub hypotheses were formed for financial cost. The first hypothesis H10a investigated the negative influence of financial cost on behavioral intention whilst hypotheses H10b examined the positive link between financial cost and perceived risks.

Statistical evidence from the quantitative data analysis showed that H10a was supported and the hypothesized negative direction was confirmed. Therefore, financial cost has a significant negative influence on behavioral intention. This finding is in alignment with field study analysis. The majority of the participants as discussed in Chapter 5 gave anecdotal evidence on the high cost of forensic accounting services. The finding on financial cost also corresponds to the result of

the qualitative study by Ibrahim and Abdullah (2007) which revealed that in Malaysia, cost is perceived as a major hindrance towards acquiring forensic accounting services.

The quantitative results are also consistent with evidence from innovation adoption studies which support the link between financial cost and the intention to adopt (Luarn and Lin 2005; Wu and Wang 2005; Wymer and Regan 2005; Tung, Chang and Chou 2008; Lee and Larsen 2009; Tung et al. 2009; Wei et al. 2009). Furthermore, Flannery and May (2000) in their ethical decision-making study provided statistical evidence to support financial cost as a significant perceived behavioral control factor. Similar to Flannery and May's (2000) result, financial cost exceeded other internal and external control factors in its standardized path coefficient value and statistical significance. This reinforces the notion that organizations are at core economic institutions and cost considerations are of paramount importance in organizational decision-making.

Hypothesis 10b is also statistically supported suggesting the significant influence of financial cost on perceived risks of forensic accounting services. The result supports evidence from a study by Chen and Dubinsky (2003) which found perceived price has a significant positive influence on perceived risk. Field study participants also agreed upon the link between financial costs and perceived risks. Overall, the findings indicate that by reducing financial cost, the perceived risks of forensic accounting services would be significantly reduced.

The business implication of the two significant hypotheses on financial cost is that service providers need to think of ways to combat the preconceived assumption that forensic accounting services can only be afforded by 'rich' companies as revealed in the field study anecdotes. Even though an extensive forensic audit can be very expensive, not all companies require this. Accounting firms can provide pricing strategies for each type of services they provide and the organizations can choose what they really require (Luarn and Lin 2005).

9.2.4.2 Hypothesis H11

Ethical deliberations are at the foundation of an organization's fraud prevention and detection strategies (Kranacher 2006; Hernandez and Groot 2007). Therefore, hypothesis H11 examined the positive influence of organizational ethical climate on the behavioral intention to use forensic accounting services for fraud detection and prevention. The quantitative findings confirmed the significant influence of organizational ethical climate.

This result is in line with evidence from the literature review, which supports organizational ethical climate's influence on organizational ethical decision-making (Bartels et al. 1998; Trevino, Butterfield, and McCabe 1998; Flannery and May 2000; Martin and Cullen 2006; Shafer 2008). In addition, 80% of the field study participants supported the link between organizational ethical climate and behavioral intention to use forensic accounting services. The result indicates that improved organizational ethical climate would influence the organization to use forensic accounting services in fraud detection and prevention.

Ramaswamy (2005) asserted that ethical corporate governance is the key to increased responsibility in fraud mitigation. The literature also emphasized that management sets the 'tone of the top', which determines the ethical climate of an organization (Trevino 1986; COSO 1992; Paine 1997; Sims 2000; Sims and Brinkmann 2002; Castellano and Lightle 2005; Grace Jr. and Haupert 2006; PricewaterhouseCoopers 2007b). Therefore, the results indicate that management's attitude is pivotal in organizational ethical decision-making leading to increased vigilance against fraud through the use of forensic accounting services.

The business implication of this finding is that the government and company board of directors need to initiate strategies that could elevate organizational ethical climate. One initiative could be to institute a mandatory requirement for all companies to have a code of ethics in place. According to Valentine and Johnson (2005), an ethics code describes the organization's ethical stance both to members and outside world and this code will have a direct positive effect on ethical behavior. In the U.S. under the Sarbanes-Oxley Act, public companies are required to disclose

in their annual report the code of ethics for senior executives in the organization. However, as suggested by Stevens et al. (2005) the organizational ethics code should be a substantive document with an ongoing ethics code training program to ensure that the code is integrated into the organization's daily activities. Hence, company board of directors could play a key role in monitoring that the code of ethics is fully adhered to, especially by the top management.

Castellano and Lightle (2005) suggested using cultural audits to assess the tone at the top of an organization. They believed such an audit can help management shape an ethical climate within the organization and help directors and auditors assess the effectiveness of internal controls. Accounting firms could offer to provide cultural audits to organizations and this could indirectly elevate the organizations' ethical climate. This increase in organizational ethical climate could in turn lead towards increased intention to use forensic accounting services in fraud detection and prevention.

9.2.4.3 Hypothesis H12

The final internal control factor is the strength of internal control system. Hypothesis H12 posited that the strength of internal control system would negatively influence organizational intention to use forensic accounting services. The results of the statistical analysis did not support the proposed hypothesis and is contrary to the field study finding which revealed that all the participants perceived the negative link between strength of internal control system and the intention to use forensic accounting services. The converse findings support the argument by Quaddus, Islam, and Stanton (2006) and Jackson (2008) that a flaw of the mixed method research is perceptions from a small group of participants is not consistent with the larger population.

One possible explanation for the rejection of the hypothesis is the organizations belief that it is more viable to rectify internally any internal control weaknesses through internal auditors rather than acquire forensic accounting services as asserted by Apostolou and Crumbley (2008). Another plausible explanation is the CFO's

(who are the respondents for this study) are responsible for their own organizations' internal control system. Hence, they may not be an ideal sample to objectively assess the strength of their organization's internal control system and relying on their perceptions may have confounded the results.

9.2.5 Hypotheses Relating to External Control Factor

9.2.5.1 Hypothesis H13

The present study, in hypothesis H13, proposed that government pressure through the enactment of fraud mitigation codes, acts, policy recommendations and regulations would positively influence organizations to use forensic accounting services. Result from PLS data analysis reveals that although the direction of the influence is as predicted, the t-value is not significant. This finding contradicts the field study participants' perceptions on the link between government pressure and their organizations' intention to use forensic accounting services. It is also not consistent with previous findings from innovation adoption studies which report on the significant positive influence of government pressure on the intention to adopt (Kuan and Chau 2001; Wymer and Regan 2005; Chang et al. 2007). The finding also contradicts the results of an ethical decision-making study by Weaver, Trevino, and Cochran (1999) which revealed that government pressure on the scope of ethics program as significant.

However, the findings are consistent with results from an innovation adoption study by Hofmeyer (2005) which did not perceive the significant influence of government pressure. Hofmeyer (2005) explained that this unusual result may be due to the diminished coercive power of government on larger businesses. Since the present study is on large companies, this explanation could also be applied here.

Another possible explanation for the rejection of the hypothesis is that only public listed companies are under the jurisdiction of government regulations implemented by the Malaysian Securities Commission. For example, the PN4 and PN17 regulation which specifically requires the use of forensic accounting services by organizations has to be adhered by public companies but not private companies. Hence, the public

companies may perceive government pressure to utilize forensic accounting services in fraud detection and prevention but the private companies may not.

Since the majority of the sample for this study comprises of private companies (62.6%), the result on the influence of government pressure may be confounded by the perceptions of these companies. In line with this argument, further testing was conducted to determine the influence of organizational type. The sample was divided into subgroup, public and private companies. Separate PLS analysis was conducted for each subgroup and the results as outlined in 8.6.3 confirmed that for public companies, government pressure significantly influenced organizational intention to use forensic accounting services whilst for private companies the influence was not significant.

The practical implication on the influence of government pressure for public listed companies is that the Malaysian government could in line with global reforms enact new acts and regulations that would necessitate public listed companies to use forensic audits. In addition, regulatory authorities could impose mandatory forensic audits specifically to detect fraud every three to five years for all companies (DiPiazza 2006). These form of government pressure would increase public listed companies' intention to use forensic accounting services in fraud detection and prevention.

9.2.6 Hypotheses Relating to Threat Perception Factors

The HBM contends that the threat perception beliefs of susceptibility and severity of threat are key drivers that activate and impel the motivation to pursue an action that could circumvent adverse health outcomes (Abraham and Sheeran 2005). The threat perception factors from HBM were incorporated in the conceptual model as the threat of fraud can be inferred to be comparable to a health threat. Hence, this study argued that perceived severity of fraud and perceived susceptibility to fraud would influence the behavioral intention to use forensic accounting services in fraud detection and prevention.

9.2.6.1 Hypothesis H14

The first threat perception hypotheses, H14, proposed the significant positive influence of perceived severity of fraud on intention to use forensic accounting services. The statistical evidence supports this link and H14 was accepted. The result gave further support to HBM studies that have observed the significant influence of perceived severity (Vanlandingham et al. 1995; Lajunen and Rasanen 2004; Roden 2004; Levy, Polman, and Clough 2008). In addition, 80% of field study participants perceived the link between perceived severity and behavioral intention to use forensic accounting services. The overall indication is that organizations that perceive the threat of fraud as severe would more likely have the intention to use forensic accounting services.

The practical implication is that forensic accounting services stakeholders need to highlight the severe costs of fraud to an organization should they wish to increase the use of these services. Seminars and courses on fraud should focus on presenting case studies and statistical evidence from companies that have been severely affected by fraud. Professional bodies, accounting firms, and even the government could produce annual fraud reports to highlight the extensive cost of fraud. The perceptions on the severe cost of fraud to an organization would in turn be the impetus that would propel the organization's use of forensic accounting services in fraud detection and prevention.

9.2.6.2 Hypothesis H15

The second threat perception factor, perceived susceptibility to fraud, was posited in H15 to have a positive influence on intention to use forensic accounting services. The quantitative data analysis revealed that statistically there was no significant influence and the hypothesis was thus rejected. The results do not align with the significant findings on the positive influence of perceived susceptibility in previous HBM studies (Vanlandingham et al. 1995; Poss 2001; Roden 2004; Ham 2005; Levy, Polman, and Clough 2008). In addition, the finding is contrary to the field study analysis whereby all the participants stated that they would take up forensic

accounting services if their organization were susceptible to fraud. However, the finding is consistent with results from HBM studies by Lajunen and Rasanen (2004), McClenahan et al. (2007), and Wulfert and Wan (1995) which reported that perceived susceptibility is not a significant construct. The findings indicate that although the organizations felt susceptible to fraud, they were not willing to invest in forensic accounting services.

The possible explanation for the rejection of the hypothesis is Malaysian companies who feel they are susceptible to fraud are more inclined to rely on internal and external audit rather forensic accounting services. As reported in the KPMG (2009) survey, 93% of companies said that to mitigate the risks of fraud they are reviewing and improving internal controls. As Turner (2002) argued many companies tend to rationalize that their internal control system is an adequate measure against fraud even when they are susceptible to fraud.

9.2.7 Hypotheses Relating to Contextual Factors

The final hypotheses pertain to the contextual factors unique to the organizations. Three organizational contextual factors were identified through the literature review on innovation adoption, ethical decision-making and fraud studies. The three constructs are organizational size, industry type, and organizational type. Field study analysis confirmed and refined the constructs. The method applied by Harrison, Mykytyn, and Reimenschneider (1997) to explain executives' decision on organizational innovation adoption was employed. Hence, all the contextual factors were included in the conceptual model as moderating the relationship between behavioral intention to use forensic accounting services and its direct antecedents. The Smith-Satterwaithe test was utilized to examine the moderating factors.

9.2.7.1 Hypothesis H16a

H16a hypothesized the moderating effect of organizational size. The sample was divided into subgroups based on turnover above RM100 million and turnover below RM100 million. The hypothesis was supported because there was a significant

difference between the two subgroups on the link between government pressure and behavioral intention. The finding is consistent with innovation adoption and ethical decision-making studies which have documented the significant influence of organizational size (Ford and Richardson 1994; Bajwa et al. 2005; O'Fallon and Butterfield 2005). Field study data analysis also yielded similar results whereby 80% of the participants agreed upon the influence of organizational size on the intention to use forensic accounting services. In addition, the moderating effect of organizational size was consistent with a previous study by Harrison, Mykytyn, and Reimenschneider (1997).

The result indicates that larger companies perceived significantly higher government pressure. This is possibly due to the majority of the larger companies' subgroup (turnover more than RM100 million) comprises of public listed companies and their subsidiary companies. Public listed companies are required to comply with Securities Commission's rules and guidelines whilst private companies are not bound by these requirements. Therefore, the larger company subgroup felt significantly higher pressure. The implication is that the Malaysian government could introduce tighter regulatory requirements to increase public listed companies' responsibilities in fraud detection and prevention. This government pressure would impel the larger companies to utilize forensic accounting services in mitigating fraud.

9.2.7.2 Hypothesis H16b

H16b proposed that type of industry moderates the relationship between behavioral intention to use forensic accounting services and its direct determinants. Industry type was categorized broadly into financial services and non-financial services companies. Bank Negara the Malaysian Central Bank regulates the financial services industry whilst the non-financial services is not regulated. The Smith-Satterthwaite test revealed that there were no significant differences between the two subgroups. This result differs from both ethical decision-making and fraud studies that have observed significant differences between industries (Baucus and Near 1991; Ford and Richardson 1994; Beasley et al. 2000; Holtfreter 2005; O'Fallon and Butterfield 2005; Barnes and Webb 2007). The finding also does not align with field study

analysis where 80% of the participants supported the influence of industry type on intention to use forensic accounting services. However, the results are consistent with fraud and ethical decision- making studies that have reported that there were no significant differences across industries (Shafer, Morris, and Ketchand 2001; Akaah and Riordan 1989).

The result indicates that there is a shared similarity among the financial services and non-financial services the determinants of intention to use forensic accounting services. This implies that this part of the model could be applied to both financial and non-financial industries. A possible explanation for the rejection of the hypothesis is that as suggested by Akaah and Riordan (1989), given the diversity of firms represented in the sample, the broad classification of type of industry would have confounded the moderating effect. Furthermore, the categorization of type of industry into financial and non-financial resulted in disproportionate number of samples in each subgroups. The financial subgroup had 49 samples whilst the non-financial subgroup comprised of 256 samples. Therefore, the large difference in the number of samples may have weakened the statistical analysis.

9.2.7.3 Hypothesis H16c

The final hypothesis H16c proposes the significant moderating effect of organizational type on the link between behavioral intention to use forensic accounting services and its direct antecedents. The statistical analysis confirmed that there is a significant difference between organizational type in three path coefficients to behavioral intention namely from organizational ethical climate, perceived severity and perceived susceptibility. Therefore, the hypothesis was supported. The findings are consistent with fraud studies that reported on the significant influence of organizational type (Holtfreter 2005; Barnes and Webb 2007). The finding also aligns with field study results whereby 80% of participants supported the influence of organizational type on behavioral intention to use forensic accounting services.

The results indicate that public listed companies had a significantly higher path coefficient for the relationship between organizational ethical climate and behavioral

intention. This may arise because public listed companies are required by the Malaysian Securities Commission to implement a higher degree of corporate governance, such as the formation of code of ethics. The implication is that government emphasis on ethical corporate governance could ensure that public listed companies employ effective fraud mitigation methods, including forensic accounting services.

For non-public listed companies, the influence of perceived severity on intention was significantly higher. The difference is possibly because public listed companies are comprised of large companies which generally have more resources and prepared to handle the impact of any form of fraud. Conversely, private companies are smaller and more vulnerable to the effect of fraud. Some private companies could even collapse if the cost of fraud was too high. Hence, private companies that perceive the repercussions of fraud are severe may be more likely to employ forensic accounting services. The implication is that forensic accounting services stakeholders could emphasize the severity of fraud to private companies and urge them to utilize forensic accounting services.

The final significant statistical difference was for perceived susceptibility on behavioral intention. The public listed companies, which perceived a higher susceptibility to fraud, had a higher intention to use forensic accounting services compared to non-listed companies. One plausible explanation for this difference is public listed companies unlike private companies are answerable to shareholders in case of any major fraud. Therefore, when there is possibility of fraud, manager's would immediately take drastic action to prevent or detect it to be seen to be acting in the shareholders' interest. The implication is that forensic accounting services stakeholders have to shatter the present illusion of safety felt by public listed companies. This reality check would make the companies realize their vulnerability to fraud and impel them to mitigate their risks by using forensic accounting services.

9.3 Summary

This chapter interpreted the results of the hypotheses testing. The results were discussed and compared with existing literature and field study analysis. The practical implications of the findings provided suggestions on effective measures that could be undertaken towards improving the use of forensic accounting services amongst large companies. Theoretical implications were also highlighted. Furthermore, the plausible explanations for the statistically insignificant hypotheses were considered. The final chapter will summarize the research. It will also draw attention to both theoretical and practical contributions of the research, state the research limitations, as well as comment on future research directions.

CHAPTER 10

CONCLUSIONS, LIMITATIONS AND FUTURE DIRECTIONS

10.1 Introduction

The focus of this multi-phased mixed method research was to investigate the determinants of the behavioral intention to use forensic accounting services for fraud detection and prevention amongst large Malaysian companies. The concluding chapter begins by providing a summary of the research conducted in completing this study. This overview of the research process and findings is followed by an account of its significant theoretical and practical contributions. In addition, the limitations of the study are discussed, and finally, several opportunities for future research are detailed.

10.2 Summary of Research

The present study drew on the literature on HOE, HBM, TRA, and TPB in developing an integrative model to investigate the antecedents of the behavioral intention to use forensic accounting services by large Malaysian companies. Organizational factors drawn from ethical decision-making, innovation adoption, and fraud studies gave further valuable underpinning in explaining this organizational decision-making. The approach of combining individual level constructs from cognitive and threat perception factors with organizational level constructs from external, normative, internal control, external control, and contextual factors gave a comprehensive view of this intention.

A multi-phased mixed method approach comprising both qualitative and quantitative methods was applied to enrich the findings of this study (Creswell 2008). The first phase extensively analyzed the literature and identified the constructs needed to develop a theoretically grounded, comprehensive yet parsimonious preliminary research model. The next phase involved a qualitative field study. Convenience sampling was used to select CFO's from ten large Malaysian companies. The data for this phase was collected using semi-structured interviews. The recorded data was then analyzed using the content analysis technique recommended by Miles and Huberman (1994). Subsequently, the initial research model was fine-tuned based on the findings of the field study with the incorporation of two new external factors; government and media. Altogether, seven factors and eighteen corresponding constructs were identified from the literature review and confirmed through the field study.

An instrument was formulated to operationalize the constructs. The items were either adopted, adapted or developed based on the literature review. Prior to large-scale administration, a pilot test of the questionnaire was conducted involving a convenience sampling of thirty CFO's from large Malaysian companies. The CFO's completed the questionnaire and commented on the flow, comprehensibility and practicality of the survey. The feedback received from the respondents was used to further refine the instrument. To maximize data collection, both mail survey and web survey were utilized. Overall, 305 returned surveys were useable and this translated to an effective response rate of 14.7%.

The survey data was analyzed with Partial Least Square (PLS-Graph version 3.0) based Structural Equation Modeling (SEM). PLS assessment of the measurement properties included convergent validity, discriminant validity, and indicator weight. For the structural model, the path coefficients and *t*-values of the hypothesized relationships were calculated to evaluate the significance of the relationships. In addition, the explanatory power (R^2) of the proposed model was assessed by estimating the variance associated with endogenous constructs.

The data analysis confirmed that the adjusted measurement model met all the requirements of convergent validity, discriminant validity, indicator weight, and

multicollinearity. The explanatory powers of the structural model were satisfactory and the overall model explained 45.5% of the variance on the intention to use forensic accounting services by large Malaysian companies. The results of the hypothesis testing confirmed thirteen of the twenty hypotheses developed in Chapter 6. The results were presented and discussed extensively in Chapters 8 and 9.

10.3 Contributions

The results of this study make several theoretical contributions to organizational behavioral intention studies. At the same time, the findings point towards practical contributions in increasing the use of forensic accounting services for fraud detection and prevention in Malaysia.

10.3.1 Theoretical contributions

The conceptual model developed for this study gives rise to several theoretical significances. The model is unique in the sense that it has been developed based on data obtained from previous literature and qualitative field study analysis ensuring that the factors and constructs are specific to the intention to use forensic accounting services. Thereby, the study contributes to the body of knowledge as there is no previous research on any intention-based model that explains organizational behavioral intention to use forensic accounting services.

Another major theoretical contribution is that this is the first study that has successfully incorporated HBM and HOE into an integrated organizational ethical decision-making model. The intention to use forensic accounting services is unique because it arises from the anticipation of the negative outcome of fraud. Hence, threat perception from the HBM was incorporated in the conceptual framework. In addition, the marketing model HOE was relevant because forensic accounting service is a relatively new service. The findings specifically conclude that the threat perception factor of ‘perceived severity of fraud’ directly drives the intention to use forensic accounting services. In addition, ‘awareness of forensic accounting services’

derived from HOE has a significant influence on perceived benefits and this in turn forms the positive attitude towards the intention to use forensic accounting services. Furthermore, professional body (an external factor construct) was found to directly influence awareness. This is the first research model that has confirmed the direct link between these two constructs.

The theoretical framework for this study also diverts from composite models drawn from TRA and HBM, which use either perceived benefits/risks or attitude as determinants of intention. The present conceptual model confirmed both perceived benefits and perceived risks as significant direct antecedents of attitude. Therefore, this method of integrating TRA and HBM suggests that valuable information on the formation of attitude could be gained by modeling perceived benefits and risks as direct predecessors of attitude.

Finally, the successful inclusion of non-traditional organizational constructs such as financial costs and organizational ethical climate as part of the perceived behavioral factor in TPB added organizational and topic-specific dimensions to an integrated behavioral intention model. The overall model also supports the utility of including both individual and organizational constructs in understanding organizational ethical decision-making.

10.3.2 Practical Contributions

The research revealed that professional bodies and accounting firms play a significant role in creating awareness of the benefits of using forensic accounting services. In turn, the perceptions of the benefits drives the positive attitude and subsequently the intention to use forensic accounting services. Therefore, professional bodies in Malaysia such as MIA, MAICPA, and ACFE chould ensure that their members are actively involved in seminars, conferences, workshops, courses and discussion forums related to forensic accounting services. These professional bodies can collaborate with each other or even with similar active bodies in other countries to work on joint projects that could create powerful networks in the dissemination of information on forensic accounting services. The

current Malaysian Audit Standard issued by MIA and MAICPA could be upgraded to ensure that organizations, through their financial auditors are able to gather information on the importance of engaging forensic accounting services in fraud detection and prevention.

Accounting firms, as service providers could explicitly draw attention to the imperative role of forensic accounting services in their publications of fraud survey reports, white papers and pamphlets on fraud. They could target specific problems faced by a particular industry and actively endorse the latest forensic solutions. The firms could also supply a depth of information on qualifications, experiences and expertise of the forensic team delivering the services. They could also highlight success stories of forensic accounting investigations in their publications and websites. In sum, the service providers need to take into account that the successful promotion of credence services is critical to their acceptance. Most importantly, the promotional activities must communicate precise information, appear trustworthy, and exhibit reliability (Mitra, Reiss, and Capella 1999).

A key area, both accounting firms and professional bodies could focus on is to draw organizational decision-makers' attention to the current audit 'expectation gap' created by financial audits and subsequently inform them on the relevancy of fraud audits. Moreover, the lack of organizational awareness on forensic accounting services' role in fraud deterrence and prevention calls for intensified efforts in promoting the utility of forensic fraud prevention programs. The advantage of forensic accounting services use in enhancing organizational image must be emphasized and organizations should be convinced of the economic benefits of this enhanced image.

The findings reveal that financial cost has a significant negative influence on intention to use forensic accounting services and a positive influence on perceived risks of forensic accounting services. Hence, another important area that accounting firms could look into is the financial costs of forensic accounting services which is perceived as a major impediment towards organizational intention to use the services. Accounting firms need to reexamine the current high fees and possibly restructure their pricing strategies in order to attract more organizations in using the

offered services. Invariably, the fees for forensic accounting services could be customized according to the needs of a company. In addition, the cost-benefits and long-term returns of this huge financial investment have to emphasized and substantiated to reduce the perceived risks.

The significant influence of stakeholder pressure on intention to use forensic accounting services suggests that organizational stakeholders must play a more prominent role in protecting their interest and investment by ensuring that companies employ the best fraud detection and prevention methods. Board of directors could decide to use forensic accounting services to implement and monitor a sound corporate governance structure in the organization. Moreover, to prevent fraud from depleting their share values, shareholders could pressure management to use forensic accounting services. Therefore, awareness campaigns on forensic accounting services could be targeted towards organizational stakeholders so that they could realize the importance of these services in fraud mitigation.

In view of the significant positive influence of perceived severity of fraud on intention to use forensic accounting services, both accounting firms and professional bodies could emphasize on the severe costs of fraud to organizations. They could provide fraud statistics through fraud survey reports and highlight the true accounts of victimized companies' fraud repercussions. In addition, they could emphasize details on fraud costs so that organizations would realize that these types of crime invariably cause extensive monetary, management, and collateral losses.

The study found that organizational ethical climate has a significant positive influence on intention to use forensic accounting services. Hence, in order to increase Malaysian companies' organizational ethical climate, the government through the Companies Commission of Malaysia could formulate compulsory requirements for all companies to have a code of ethics in place. The commission could also conduct regular checks and monitor that the code of ethics is fully adhered to especially by the organizations' top management. In view of the evidence that the cost of fraud to the nation is immense, the findings of this study should provide the impetus and challenge for the Malaysian government to expand its role in the fight against fraud. The Malaysian government through the Securities Commission Malaysia could

review recent global reforms against fraud and enact new regulations for public listed companies. These regulations should focus on directly or indirectly compelling large companies to use forensic audits.

10.4 Research Limitations

The first limitation of this study is that the cultural, institutional, economic, and political environment, which is distinctive and unique in Malaysia, may restrict the generalization of the results (Teo, Wei, and Benbasat 2003). Nevertheless, this lack of generality may not be as severe because Malaysia being a cosmopolitan country has attracted numerous multinational companies that are represented in the study sample. Nevertheless, cross-country studies could provide further information on the applicability of this model under different cultural, institutional, economic, and political conditions.

The second limitation is that the sample is limited to large companies due to time and financial constraints. There is evidence that the occurrence of fraud is ubiquitous regardless of company size. Therefore, there is still a need to investigate the lack of utilization of forensic accounting services in small and medium enterprises.

The use of CFO as respondents of the study may also limit the generalizability of the results. Although CFO's are pivotal in the decision-making process of acquiring forensic accounting services, the opinions of a company CEO's and audit committee members are also influential and the final decision is ratified by the company board of directors. A useful extension of this study would be to collect data from other significant respondents such as the CEO or audit committee members of the company.

A further limitation of this study is the low response rate. Although the 15.8% response rate for mail survey is within the typical range for a Malaysian mail survey, it may not be representative of the population. For this reason, non-response bias

tests were conducted and the results indicate that the samples do represent the sampling frame.

Finally, since the quantitative data in this research was collected using self-report surveys, the data is potentially susceptible to common method bias (Podsakoff et al. 2003). For example, respondents may try to guess the researchers' intention and respond accordingly or each respondent may perceive the strength of each Likert scale in a different manner. Although common method bias is a concern, researchers also maintain that more often the detected bias is not large enough to influence the theoretical interpretations gained from the data analysis (Doty and Glick, 1998; Keeping and Levy, 2000). Crampton and Wagner (1994) and Spector (2006) further argue that the problem of common method bias is often negligible. In addition, the assurance of participant anonymity and the use of company CFOs as respondents may have yielded objective and accurate responses. Nevertheless, future research could consider developing an appropriate methodology for data collection that could minimise this limitation.

10.5 Future Research Direction

The limitations of the study imply the need for further research. The lack of generality due to the cultural, institutional, economic, and political environment in Malaysia envisages the need for cross-country studies, which would provide further applicability of the conceptual model under differing political, economic, and cultural conditions. Moreover, this is a snapshot study conducted at the start of the global financial crisis in 2008. Some of the influences of control factors such as financial cost and government pressure may vary in a different economic era. A longitudinal study on the factors that influence the behavioral intention to use forensic accounting services may control for these variables.

The study was confined to investigating large companies' behavioral intention. However, fraud is pervasive and pernicious. Small and medium enterprises (SME) have been the subject of numerous studies on innovation adoption subject (Wymer

and Regan 2005; Khalifa and Davison 2006; Quaddus and Hofmeyer 2007; Seyal, Rahman, and Mohammad 2007). This is because these companies are considered as more flexible and willing to adapt to changes compared to larger firms (Mintzberg 1979). Yet, small businesses have also been observed as lacking strategic thinking and resources (Nooteboom 1988). Ethical decision-making studies have also focused on SME's (Cordano, Marshall, and Silverman 2010). SME's are more often privately owned and the owners are involved in the daily operations. Hence, the ethical environment in these companies will certainly be different from large companies, in which the owners generally delegate decision-making to professional managers. Therefore, the contribution of the unique contextual characteristics of SME towards the behavioral intention to use forensic accounting services could be investigated.

This study collected data from CFO's of large companies. Although the justification for the use of this particular key personal of an organization is strong, future research could interview and survey other significant respondents. For example, company CEO's, board of directors and audit committee members who play a vital role in the final organizational decision-making could be sampled. In addition, the use of multiple respondents from each organization would decrease potential response bias.

Although the explanatory power of the endogenous constructs in the model met the minimum requirement, future research could investigate additional factors that might increase the variance. This is especially true for the explanatory power of awareness, perceived risks, and perceived benefits. For example, the inclusion of additional external factors may increase the variance explained by the awareness construct.

Finally, in addition to studying the behavioral intention to use forensic accounting services for the detection and prevention of fraud, the core of this model has applicability to other intentions, especially those that involve threat perceptions. Beyond the scope of forensic accounting services, the conceptual model could therefore be applied to other ethical intentions such as in environmental decision-making. The model could also be used to determine the intention to adopt crucial services in the health and financial sectors. Notwithstanding, the model may require some extension and construct re-operationalization for the different type of services and contexts.

10.6 Summary

Forensic accounting services have been shown to be an effective and essential measure in fraud detection and prevention. Furthermore, the skills and expertise of forensic accountants have the potential to reduce the current predicament of audit 'expectation gap'. However, the usage of forensic accounting services by Malaysian companies is a low 20%. This study investigated the determinants of the behavioral intention to use forensic accounting services by large Malaysian companies.

A qualitative field study combined with a national survey and quantitative data analysis determined the critical antecedents of the intention to use forensic accounting services for fraud detection and prevention amongst large Malaysian companies. Attitude towards forensic accounting services, perceived severity of fraud, stakeholder pressure, organizational ethical climate, and financial cost were confirmed as significant direct determinants of behavioral intention. The thesis also offered a theoretical contribution through a distinct model that has successfully integrated Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Health Belief Model (HBM), and Hierarchy of Effects Model (HOE).

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Appendix 1

Semi-structured Interview Questions

The dominant question on this research is:
What are the predominant factors that influence intention to use forensic accounting services (FAS) for the prevention and detection of fraud by large Malaysian companies?

This leads to following questions:

Q1. What are the factors that made you aware of the role of forensic accounting services in the prevention and detection of fraud?

a. Do you think professional bodies contributed in creating awareness of forensic accounting services?
   Probe: Could you tell me how?
b. Do you think accounting firms contributed in creating awareness of forensic accounting services?
   Probe: Could you tell me how?

Q2. In your opinion, what are the benefits and risks of using forensic accounting services in your organization?

Probe: Could you give some examples of benefits associated with acquiring forensic accounting services?

Probe: Could you give some examples of risks associated with acquiring forensic accounting services?

Q3. Do your perceptions of the benefits and risks of forensic accounting services affect your attitude towards forensic accounting services?

Probe: Could you tell me how do the perceived benefits of FAS affect your attitude?

Probe: Could you tell me how do the perceived risks of FAS affect your attitude?

Q4. Based on the benefits and risks, do you intend to use forensic accounting services?

Probe: If you conclude that FAS bring benefits, do you intend to use FAS in your organization?

Probe: If you conclude the FAS bring risks, do you intend to use FAS in your organization?

Q5. Do you think your company feels the pressure to use or not to use forensic accounting services based on what the sentiments of the stakeholders are?

a. Could you name the salient stakeholders that might pressure your company's intention to use or not to use forensic accounting services?

Q6. In your opinion, what are some of the steps that your company would take if it believes the consequences of fraud is severe to the company?

a. Could you give some examples of fraud consequences to your organization?
b. Would the perception that the consequences of fraud are severe affect your company's intention to use forensic accounting services?

Q7. What would your company do if it perceives that there is a high probability that it would be susceptible to fraud?

a. Does your company worry that it will be susceptible to fraud?
b. How would the perception of susceptibility to fraud affect your company's intention to use forensic accounting services?

Q8. What are internal situational conditions in your company that either facilitates or constrains the company's intention to use forensic accounting services?

a) Do you think the organizational ethical climate in your company affects the intention to use forensic accounting services?

Probe: Could you tell me how?

b) Do you think strength of internal control system in your company affects the intention to use forensic accounting services?

Probe: Could you tell me how?

Probe: In your opinion what are the key components that determine the strength of internal control system in your organization?

c) Do you think cost of the services affects the intention to use forensic accounting services?
   Probe: Could you tell me how?
d) Do you think cost of the services affects the perceived risk of using forensic accounting services?
   Probe: Could you tell me how?

Q9. In your opinion, what are the external factors outside your company that may enable or impede the company's intention to use forensic accounting services?

a) Do you think the Malaysian Code of Governance and Securities Commission's guidelines influence your intention to use forensic accounting services?
   Probe: Could you tell me how?

Q10. What are the organizational characteristics unique to this company that would influence the intention to use forensic accounting services?

a) Do you think the size of this company affects the intention to use forensic accounting services?
   Probe: Could you tell me how?
b) Do you think the industry type of this company affects the intention to use forensic accounting services?
   Probe: Could you tell me how?
c) Do you think the organizational type of this company affects the intention to use forensic accounting services?
   Probe: Could you tell me how?

Appendix 2

Sample Script

Q1: What are the factors that made you aware of the role of forensic accounting services (FAS) in the prevention and detection of fraud?

A1: I think there is increasing awareness, among management about the need to establish a control system, higher standard of governance and to help management establish those systems. Forensic accounting services would be useful of course sometimes that will come after the event but to use forensic techniques to build into your system would be the challenge and that would be useful for the management. So those are the kind of system that will create awareness to management of the need to use these services.

Q1(1): You talked about management's awareness. Actually, what made management become aware of the role of forensic accounting services?

A1(1): Generally, when you talk about the various frauds in the country, reading the newspaper and the financial dailies about the kind of fraud that has taken place, which creates the awareness. And we have got the regulatory authorities and making emphasis on those areas, so those are the kind of thing that would have create awareness for management.

Q1(a)(1): Do you think professional bodies contributed in creating awareness of forensic accounting services?

A1(a)(1): If you talk in Malaysia probably very limited and maybe among its members in small measure.

Q1(a)(2): Could you tell me how they create awareness?

A1(a)(2): Through their newsletters, they share that kind of information but that's why I say very little impact.

Q1(b)(1): What about the accounting firms contributing creating awareness of forensic accounting services?

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A1(b)(1): Accounting firms have contributed from the fact that they are also looking at business opportunity. So if they find an opportunity there, yes, they would have created awareness to sell a service to the business as such but I wouldn't think that they will go to management or company and sell the services per se.

Q1(b)(2): How have the accounting firms created your awareness? They are service providers, you see like we have Big 4 coming up with fraud survey and they do recommend to use forensic accounting services.

A1(b)(2): The fraud survey results are also published. The accounting firms also through their newsletter do promote that kind of information and share that kind of information. But do say that they actually promote these services actively; I don't think they have come to this stage yet.

Q2: In your opinion, what are the risks and benefits of using forensic accounting services in your organization?

A2: Benefit would be you got an independent party who is most knowledgeable, more skill and this are specialized skill that people wouldn't have acquired in normal course of their work. So that will beneficial. So of course they come with cost. So all depends on the experience of the corporation itself whether they find there is a need for such services to be engaged in good time. When I say good time, I mean not after the event. And that I think it is not something very easy to accept and engage their services.

Q2(a)(1): What about other examples of the benefits associated with acquiring forensic accounting services? What about policy of warning?

A2(a)(1): Early warning system?

Q2(a)(2): If you use these services, it seems like saying that the management is really serious about deterring any unethical behavior.

A2(a)(2): Well it depends on the company or corporation culture itself. If they are very high on the corporate governance profile then they will

automatically be in search of this. I think the Malaysian environment I don't think that is kind of high on the agenda although it desirable for the leading companies to have high standard of governance. But that is very much achieved by having their own internal control systems, the governance standards that have been prescribed by the authorities and so forth which will meet the requirements for the country.

Q2(a)(3): What about enhancing the image of the firm by acquiring this services?

A2(a)(3): I don't think it will be perceived as one up on the others on having got this services. In fact it might send the wrong message that the company thinks there is a big trouble in the company that's why they have engaged this services.

Q2(a)(4): That is more on the risk.

A2(a)(4): Yes.

Q2(a)(5): You mean by bringing in the forensic accountant it will not enhance the image of the company?

A2(a)(5): Guna, as far as after the fraud or after the event normally companies will go all out. At least those at the top end of governance, they will go all out to get but that is too late. I am talking about whether they can come upfront and building into your management system and control system. That, I can't see happening. What one can do is based on their own knowledge they can improve on their control system to have direction. That will depend on the people, caliber of management and their own skill itself. What has not happened is that if you are looking for the accounting firms that for having promoted techniques that has very little impact on that.

Q2(a)(6): You are talking more on prevention. What about if the fraud has occurred, can I say that one of the benefits is recovery of assets and cash?

A2(a)(6): Yes. I think they want to identify recovery of assets and cash they want to know the cost and then they would rectify the loopholes by strengthening the management control, governance control and management system.

Q2(b)(1): Could you give some examples of the risk associated with acquiring forensic accounting services? One of it you said just know, was image. What about other than that.

A2(b)(1): Cost could be one.

Q2(b)(2): That is on financial risk?

A2(b)(2): Yes, to the corporation and the management themselves must first view it as something that can really contribute to their organization. And that is lacking. Then it is the question of the cost and benefit. Even you can perceive value in it then the cost is not a major issue. While you don't see it as a benefit then of course everybody would be talking about the exorbitant cost of it. This service is not cheap.

Q2(b)(3): One of the problems of forensic accounting services is, these services cannot be judged confidently before purchasing it. Would you say that it is one of the risks?

A2(b)(3): Actually Guna, if talk about accounting firms, they are actually in a very good opportune position to promote this if they actually so desire. Every company got auditors appointed. They get a lot of insight of the financial business, the management and the whole array of things happening to the business. They don't offer it as service to enhance the capabilities of forensic services itself or to implant it into the system. That is because they also become very cost conscious. They are very focused on the sole objectives that they are there for which is to provide an opinion on the financial statement to which they auditing for which they have been engaged. And in that process they haven't given this additional value add service despite all the time you talk about professional firm all over the world talking about value added service to the client.

Appendix 2

Q3(1): Do your perceptions of the benefits and risks of forensic accounting services affect your attitude towards forensic accounting services?

A3(1): Well, I think it is good to have this service. The question really arises is whether the company need's it… Goes back to the benefit and cost again. When you do not know enough, you also get the comfortable feeling that you don't need it. It is a chicken and egg situation in some way. Yes, there are benefits to it but how you can embed them into your management system would be the challenge.

Q3(2): You perceived there is a benefit. Could you tell me how do the perceived benefits of FAS affect your attitude?

A3(3): If you have a strong view that it will benefit, then I think as I told you earlier the cost consideration will take 2nd level and you will pursue it.

Q3(4): Could you tell me how do the perceived risks of FAS affect your attitude?

A3(4): If you have high perceived risk, the chances are that you will research of techniques to mitigate the risk and you might not get into engaging such services.

Q4(1): Based on the risks and benefits, do you intend to use forensic accounting services?

A4(1): If I have identified a significance risk or significant loophole in the systems and management capabilities then we will go in search for solution. When everything as we understand is going smoothly again it could be perception the things are working well we won't go in search of such services.

Q4(2): Now we have benefit and risk depends on situation. If you conclude that FAS bring benefits, do you intend to use FAS in your organization?

A4(2): If it brings benefit, the answer should be natural, yes.

Q4(3): If you conclude the FAS bring risks, do you intend to use FAS in your organization?

A4(3): No, it should mitigate my risk and not bring additional risk.

Q4(4): One of the risks you talked about is the image. If you conclude it brings risk then do you intend to use forensic accounting services?

A4(4): If that is the risk from image point but if you think it will strengthen and bring other benefit that can override the image. Image is an issue that can be managed. You know just because you engaged this service it doesn't need to be publicized to the entire world. You can call it by different name; the engagement can be sought in different ways to get the same services.

Q4(5): As I understand it, for you the intention to use forensic accounting services in your organization depends on the situation whether benefits outweighs the risks.

A4(5): Yes.

Q5(1): Do you think your company feels the pressure to use or not to use forensic accounting services based on what the sentiments of the stakeholders are?

A5(1): I don't think there is any pressure to use or not to use. It is entirely on the management issue. It is the management capability. If the management wants to evaluate and enhance its capabilities or not. I don't think there is any external pressure to use or not to use.

Q5(2): The pressure could be internal stakeholders. Could it be the board of directors?

A5(2): No, that kind of awareness has not reached that level.

Q5(3): You don't feel pressure from the stakeholders?

A5(3): As long as a company can have reasonable set of systems of internal control, management control and governance standards, the board is not

going to be specific as what to do. It is entirely a management call. I don't think the board of directors are created with that kind of awareness to prescribe what to do because of the nature of terminology itself forensic. It is perceived to be after the event you get these services, and then they will tell you the whole story but in that situation I think even the blind and dumb can also come to the conclusion already.

Q6(1): In your opinion, what are some of the steps that your company would take if it believes the consequences of fraud is severe to the company?

A6(1): Then I think we will look at it seriously and the first approach will be to see management themselves can fix the problem. Otherwise if it is really serious then there is a very good chance we will get external help and probably the first point of contact might be the companies auditor's themselves because the view that the auditors are knowledgeable and they can straight zoom down and pin point the area that need attention.

Q6(2): If you talk about severity, what would be the effects to your company?

A6(2): All depends on the degree of fraud whether we can handle it using our own resources or not. Guna, if it is not checked by the management it will bring a repercussion to the management and to the organization. The losses incurred by the company will bring down the whole company due to loss of faith by the employee and also by the customer. There will be also additional cost to the organization to employ people to investigate the fraud.

Q6(3): Just now, you mentioned lost of faith by the employee and customer. How will this affect your company?

A6(3): Once employees lose faith in the organization they will not be motivated to work harder and this will impair the productivity and the efficiency of the company. It will affect the bottom line of the company, profit. On the customer, they will keep away from doing business with us.

Q6(4): Would the perception that the consequences of fraud are severe affect your company's intention to use forensic accounting services?

A6(4): Yes, it will. That's why I said you might not know that you have a problem but I don't believe that if the management knows they have a problem they will let it lie.

Q6(5): That is the reason now, accounting firms are emphasizing on prevention. They emphasize on corporate governance now rather than those days which was more on detection of fraud after fraud has occurred.

A6(5): Yes, now more on prevention.

Q7(1): What would your company do if it perceives that there is a high probability that it would be susceptible to fraud?

A7(1): I think we will address it. I am not sure whether we will straight away engage a forensic accounting service on it. But we will look and if we can't handle it internally then as I told you the chances are we might get to the auditors first to look at it. If they prescribe, something more specialized like the forensic team to look at it then that will be the course of action that one will follow.

Q7(2): Does your company worry that it will be susceptible to fraud?

A7(2): No, we have a highly reliable control system. If we encounter any control gap, we quickly administer procedures to mitigate the risks. The probability of fraud happening in my company is slim.

Q7(3): The perception of susceptibility to fraud affects your company's intention to use forensic accounting services.

A7(3): Yes.

Q7(4): How would the perception of susceptibility affect your company intention to use forensic accounting services?

A7(4): If we think there is a control failure or control gap, we would have already instituted some procedures to address or mitigate the risk. That's

why I keep emphasizing that it all depends whether we perceived there to be a problem or not. If we do not know then you are not going to act. If the end is broken then you are not going to fix it? So that's where I think the successful company they foresee things that others don't see. The successful company got vision that others don't have. In fact, smaller companies they need little of this because they are owner managed. There owners have spread themselves so widely across the organization they got their finger on every part. They exactly know what going wrong in their organization. In fact, they are in a better place to manage this kind of facilities.

Q8: What are internal situational conditions in your company that either facilitates or constrains the company's intention to use forensic accounting services?

A8: That is a very academic question for us because we have not even considered using it but as I mentioned earlier if we think there is a need and we don't have a capability then we will definitely address it. But if we know about the problem and is big enough, we will definitely go and seek this assistance. That is an academic question.

Q8(a): Do you think the organizational ethical climate in your company affects the intention to use forensic accounting services?

A8(a): Yes. We have high standard for governance because we have good control system. Don't forget it is also to in a way protect management also. We are also looking for protection. We don't want to be caught in a situation where after the event people point fingers and say something fundamental management has been negligence. So management got no reason not to use such services if they think it is benefit for the corporation and also to protect the management that they have taken necessary steps.

Q8(b)(1): Do you think strength of internal control system in your company affects the intention to use forensic accounting services?

A8(b)(1): Put this way again, I think if there is a area we need to improve, we don't have the answers internally, we would scout around for services and forensic will be a area we would consider but it is not something comes straight to your mind.

Q8(b)(2): If your internal auditors says there is some weaknesses in your internal control system that you need to fix, so they are talking about the strength of internal control system. Will this affect your intention to use forensic accounting services?

A8(b)(2): If the internal auditors have said that, first of all we will expect them to do their research and come up with recommendation. We won't straight a way go for forensic accounting services external. So it depends on the magnitude of the problem, magnitude of the issue from control point of view to see whether internal resources can solve the problem or not.

Q8(b)(3): In your opinion what are the key components or areas you think that determines the strength of internal control in your company?

A8(b)(3): To have a sound internal control system, we make sure that there is a proper guidelines and procedures are established for people to follow and this should be communicated to top level as well to the lower people. Everybody in the company from the directors, top management and other employees should be aware the importance of the internal control to make sure it is successful. The company should identify risk and take remedial action and this should be done periodically. All this action and performance need to be monitored so that it is functioning according to the company's objective.

Q8(c)(1): Do you think cost of the services affects the intention to use forensic accounting services?

A8(c)(1): It is cost and benefits issue. If we think we don't have the capability that is terribly important, yes I think people will use. But I wouldn't in my own experience. I have been in external audit also; maybe I am 10 years behind in time on that. I wouldn't know any company would one day

have walked to the management and said "alright I want to review done this system and let get external help." I haven't come across that. They always wait for some symptoms to arrive. Proactive management, the slightest symptom will engage, some will ponder over it and access it then size it up until it becomes a major problem then engage those services.

Q8(c)(2): Do you mean after the fraud occurred, then only they will look at it and it is more on detection than prevention?

A8(c)(2): Because people don't really think that it could be a big problem and people tend to underestimate. They don't think it will happen. I think among senior management also sometimes they take internal control probably as much as talked about from governance point of view. They all accept it. They also take it a bit lightly. That's why you end up in that situation.

Q8(d)(1): Do you think cost of the services affects the perceived risk of using forensic accounting services?

A8(d)(1): As I mention before, services are not. So the risks are there.

Q9(1): In your opinion, what are the external factors outside your company that may enable or impede the company's intention to use forensic accounting services?

A9(1): Externals I have told you that image is the only I can think off. Acquiring this service might bring bad reputation to the company and it will affect the business transaction.

Q9(2): What about government pressure?

A9(2): In this country, there is nothing of that sort. There is no pressure at all from outside to use this. It is entirely a management call.

Q9(3): In the U.S. where they have the Sarbanes-Oxley Act that states of using forensic accountants if fraud is detected and SAS 99 auditing standards is

also towards investigate auditing. Do you think we have this kind of regulation in Malaysia?

A9(3): Guna, all that depends on the culture of country before you go to the corporation. Of courses you got multi races of corporation where they are with corporate governance, ethical issue and all that. Living that a side, I think our culture in the country is not right. A good example lets take the other extreme like Singapore. They do business with Singaporean; they will never think a way to find around the law. They will find the solution within the law. In Malaysia, law becomes secondary and we would like to get the deal done, latter we can do patch up the law then we know when we are encountered with the authorities on the enforcement there is a way to work around it too. So I think it has to be a national culture first then you talk about corporation. Of course in a country like ours, foreign investors will also look at the corporate governance, they will categorize the corporation by the governance standards.

Q9(a): Do you think the Malaysian Code of Governance and Securities Commission's guidelines influence your intention to use forensic accounting services?

A9(a): No. Not necessary at all. All this are prescribed to maintain that high standard of corporate governance. They have prescribed certain areas in which will have to meet some minimum standards whether it is the board reporting and so forth. And within that context there is nothing to prescribe that you must use these services. Not that I am aware at least I don't know there is. We are nowhere near there. So I think what it all revolves around is, you need a dynamic internal control and management system. The whole business environment is rapidly changing, people also change, there is always pressure to perform and deliver. That process compromises might have been made; whether management can be ahead of the game. That is where the challenge is.

Q10: What are the organizational characteristics unique to this company that would influence the intention to use forensic accounting services?

A10: I think they want all the time be ahead in accessing their internal control system, management control systems are meeting their needs of their business. Again in corporate interest as well as protect management.

Q10(a)(1): Do you think the size of this company affects the intention to use forensic accounting services?

A10(a)(1): Two things. I think is the size and the management. I won't say perception, how management wants to manage the company. Their own governance standard.

Q10(a)(2): We talked about size. One will be turnover and the other one will be number of employees. Do you think both will affect the intention to use forensic accounting services?

A10(a)(2): I think the size will depend on the financial capability of the company. Whether they are RM100,000 company or RM5 million company or RM100 million company along those range.

Q10(b)(1): Do you think the industry type of company affects the intention to use forensic accounting services?

A10(b)(1): Maybe some industries are more prone to fraud. Maybe that could be a guiding factor. So management if you got right management there, they should recognize this as a risk and be more on look out. But others maybe not.

Q10(b)(2): Some finance and insurance company do have their own forensic team.

A10(b)(2): I think the credit company do pretty good job because they know their risk are high.

Q10(b)(3): They have embedded in their risk management.

A10(b)(3): Yes.

Q10(b)(4): What about your company?

A10(b)(4): I wouldn't think so.

Q10(b)(5): What is your company doing?

A10(b)(5): We are in property development.

Q10(c)(1): Do you think the organizational type of the company affects the intention to use forensic accounting services?

A11(c)(1): Non-listed company one will take the view that they are very much owner managed and their stakeholder risk are different and they manage it at different level. They are tightly controlled and area of risk is less. I think providers are looking at bigger corporation where they are looking at public investing in them and so forth. Again, we talk about stakeholders; we just shouldn't confine it to investors. I mean stakeholders now has a wider interpretation of employees, supplier and all that kind of thing but I don't think people see it on that like so but when we look at a company, we are looking at the KLSE company and taking a wider interpretation of stakeholders of those company.

Q11(1): Before we finish this interview, do you want to add anything on this intention to use forensic accounting services. Are there any factors that you feel will affect your behavior intention to use forensic accounting services other than what we have discussed before?

A11(1): I think if the service providers can promote this, greater awareness will be created. More importantly, to expedite the use of forensic accounting services, they should identify a real need in a company. As I told earlier, the auditors are in very good position to identify such needs to open the door for such services to be used and that is not happening yet.

Q11(2): I agree with you on that. Only by opening the doors and it will be done by Big 4's because they have the forensic team. Unlike the other accounting firms, they don't have forensic team definitely they will not promote forensic services.

A11(2): Correct but the Big 4 probably have 60-80% of the market share of the KLSE listed companies.

Appendix 3

KETUA PEGAWAI EKSEKUTIF/KETUA PENGARAH HASIL DALAM NEGERI
(CHIEF EXECUTIVE OFFICER/DIRECTOR GENERAL OF INLAND REVENUE BOARD)
LEMBAGA HASIL DALAM NEGERI MALAYSIA.
(INLAND REVENUE BOARD)
TINGKAT 15, BLOK 9,
KOMPLEKS BANGUNAN KERAJAAN,
JALAN DUTA, PETI SURAT 11833,
50758 KUALA LUMPUR,
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Telefon: 03-62091000
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03-62031369
03-62018891
Homepage LHDN: http://www.hasil.org.my

29 August 2008

TO WHOM IT MAY CONCERN

Dear Sir,

RESEARCH QUESTIONNAIRE FOR PhD DISSERTATION

Mr. Gunasegaran Muthusamy, an Assistant Director in LHDN has been given a full scholarship to pursue his PhD at the Curtin University of Technology, Australia. He is now in the process of obtaining data for his dissertation through survey questionnaire. The survey attempts to find out the predominant factors that influence the Behavioral Intention to use Forensic Accounting Services for the Detection and Prevention of Fraud by Large Malaysian Companies.

2. He needs the Chief Financial Officers of large Malaysian companies to answer the questionnaire. This is a humble request for your kind assistance in completing the questionnaire. The study is purely academic.

3. I greatly appreciate your cooperation and assistance in this matter.

Thank you.

Yours sincerely

[DATO' DR. MOHD SHUKOR BIN HJ. MAHFAR]
Deputy Director General (Operations)
Inland Revenue Board of Malaysia.

Appendix 4

Dear Survey Respondent

Thank you for agreeing to complete this questionnaire. Your participation in this research is voluntary. The confidentiality and anonymity of the respondents will be respected and protected. I will ensure and guarantee that none of the respondents that cooperate in the research will be identified or be capable of identification in the writing up of the research for academic publication. Any data presented will be aggregated as I am interested in general trends, not in a particular individual or organization.

The questionnaire attempts to find out the **predominant factors that influence the behavioral intention to use forensic accounting services for the prevention and detection of fraud by large Malaysian companies**. Your assistance in completing this questionnaire would be valuable not only to me but would also make an important contribution to our knowledge about forensic accounting services in Malaysia. I will value your honest response to the questionnaire and your kind participation is greatly appreciated. I will be pleased to send you a specific report on the main findings of the study should they be of interest to you.

This study has been approved by the Curtin University Human Research Ethics Committee. If needed, verification of approval can be obtained by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research & Development, Curtin University of Technology, GPO Box U1987, Perth 6845, or telephone +618-92662784. If you would like further information about the study, please feel free to contact me. My contact details are provided below. Alternatively, you can contact my supervisor Professor Mohammed Quaddus on +618-92662862 or by e-mail: mohammed.quaddus@gsb.curtin.edu.au

For the purpose of this study the following definition will be used:

Forensic accounting services (FAS): services provided by accounting firms that use specialized investigative skills and techniques in detecting any existing fraud and proactively setting up fraud prevention systems.

Fraud: "*an intentional act by one or more individuals among management, those charged with governance, employees, or third parties, involving the use of deception to obtain an unjust or illegal advantage"* (ISA 240).

Thank you very much for taking your time and effort to complete this survey.

Yours sincerely,

Gunasegaran Muthusamy
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Graduate School of Business
Curtin University of Technology
6000 Western Australia
Tel: +618-92661149, Fax: +618-92663368
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Section 1: Organizational Characteristics

The following questions deal with the basic characteristics of your organization. Please check the appropriate response.

1.1 Please indicate the main sector in which your company operates

- ☐ Construction & Engineering
- ☐ Consumer Products
- ☐ Electronics / Technology
- ☐ Energy / Petroleum
- ☐ Financial Services
- ☐ Hospitality
- ☐ Industrial Products
- ☐ Management / Holding Company
- ☐ Manufacturing
- ☐ Mining
- ☐ Plantation
- ☐ Publishing / Printing
- ☐ Real Estate
- ☐ Transport
- ☐ Trading / Services
- ☐ Utilities
- ☐ Others (Please specify) _____

1.2 Please indicate your organization's turnover in the financial year ending 2007

- ☐ Less than RM5 million
- ☐ RM5 million – RM25 million
- ☐ RM25 million – RM50 million
- ☐ RM50 million – RM100 million
- ☐ RM100 million – RM250 million
- ☐ RM250 million – RM500 million
- ☐ RM500 million – RM1 billion
- ☐ Greater than RM1billion

1.3 Please indicate the number of employees in your company

- ☐ Less than 50
- ☐ 51 – 150
- ☐ 151 – 250
- ☐ 251 – 500
- ☐ 501 – 750
- ☐ 751 – 1000
- ☐ 1,001 – 5,000
- ☐ 5,001 – 10,000
- ☐ Greater than 10,000

1.4 Please indicate your company type

- ☐ Public Listed Company
- ☐ Private company (Sdn. Bhd.)
- ☐ Others (Please specify) _____

Please remember, for the purpose of this study the following definition will be used:

Forensic accounting services (FAS) are services provided by accounting firms that use specialized skills and techniques in detecting and preventing fraud.

1.5 Is your company currently using FAS or had used FAS in the past for fraud detection and prevention?

- ☐ Yes
- ☐ No

If your answer to question 1.5 is yes, please answer the following question and then proceed to the next section. Otherwise, you can proceed to the next section.

1.6 Please indicate the type of forensic accounting services your company is currently using or have used for fraud detection and prevention. You may check as many boxes as possible.

- ☐ Fraud investigation
- ☐ Litigation support & expert witness
- ☐ Computer forensics
- ☐ Asset tracing and recovery
- ☐ Assessing and strengthening Internal Control System
- ☐ Damage or loss quantification
- ☐ Fraud risk management
- ☐ Fraud Prevention System
- ☐ Develop regulatory compliance strategies
- ☐ Others (Please specify) _____

Appendix 4

Section 2: Familiarity with Forensic Accounting Services (FAS) **Listed below are statements that may familiarize you with Forensic Accounting Services (FAS).** Please read each statement carefully, then indicate the extent to which you disagree or agree by checking the appropriate number on a scale of 1 (Strongly Disagree) to 6 (Strongly agree).	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
	1	**2**	**3**	**4**	**5**	**6**
2.1 Professional bodies conduct seminars / courses on fraud that describe the role of FAS in fraud detection and prevention.						
2.2 Professional bodies publish articles in journals or magazines on fraud and mention the role of FAS.						
2.3 Professional bodies distribute information on FAS to members through newsletters or pamphlets.						
2.4 Accounting firms provide information through auditors on the use of FAS for fraud detection and prevention.						
2.5 Accounting firms promote FAS for the detection and prevention of fraud via journals and magazines.						
2.6 Accounting firms promote FAS for the detection and prevention of fraud via seminars and courses.						
2.7 Fraud survey reports published by big accounting firms provide information on the role of FAS in fraud detection and prevention.						
2.8 Accounting firms distribute information on FAS through newsletters and pamphlets.						
2.9 Media highlights the importance of ensuring that financial professionals have the necessary training and skills on FAS.						
2.10 Magazines and journals report news on high profile fraud cases and the use of FAS in these cases.						
2.11 Newspapers report news on high profile fraud cases and the use of FAS in these cases.						
2.12 Regulatory authorities' emphasis on FAS gives my company information on the role of FAS for fraud detection and prevention.						
2.13 Risk management introduced by KLSE created an awareness of FAS.						
2.14 Government policies to mitigate fraud stimulate a supply of information on FAS.						

Section 3: Awareness, perceived benefit, perceived risk and attitude towards Forensic Accounting Services (FAS) **Listed below are statements that represent awareness, perceived benefit & risk and attitude towards Forensic Accounting Services (FAS).** Please indicate the extent to which you disagree or agree by checking the appropriate number on a scale of 1 (Strongly Disagree) to 6 (Strongly agree).	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
	1	**2**	**3**	**4**	**5**	**6**
3.1 I am aware of the role of FAS in fraud detection and prevention.						
3.2 I am familiar with the benefits of using FAS.						
3.3 I am familiar with the risks involved in using FAS.						
3.4 Using FAS helps to deter fraud from happening.						
3.5 FAS helps in the recovery of cash and assets that have been stolen.						
3.6 Using FAS enhances the image of my company.						
3.7 Forensic accountants have more objectivity and credibility than internal auditors or company accountants in fraud detection and prevention.						
3.8 Forensic accountants have accounting expertise and industry knowledge in handling fraud.						
3.9 FAS identifies and quantifies damage due to fraud.						
3.10 FAS gathers and presents evidence in a professional and concise manner.						
3.11 FAS helps to tighten internal control processes and procedures.						
3.12 FAS is very costly and there is no guarantee of the detection and prevention of fraud.						
3.13 Using FAS is a sign to stakeholders that my company is having serious problems.						
3.14 It is difficult to evaluate the effectiveness of FAS in fraud detection and prevention before acquiring the services.						
3.15 Using FAS will cause sensitive information of my company to become known by the public and competitors.						
3.16 Using FAS would restrict or curtail decision making by the employees in my company.						
3.17 I think it is good to use FAS for fraud detection and prevention.						
3.18 Overall, my attitude towards FAS is positive.						
3.19 I believe that the benefits of FAS outweigh the associated risks.						

Section 4: Stakeholders Influence **Listed below are statements on the influence of stakeholders in your company's intention to use Forensic Accounting Services (FAS) for fraud detection and prevention.** Please indicate the extent to which you disagree or agree by checking the appropriate number on a scale of 1 (Strongly Disagree) to 6 (Strongly agree).	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
	1	**2**	**3**	**4**	**5**	**6**
For fraud detection and prevention, my company's…						
4.1 shareholders think we should use FAS.						
4.2 banks / lenders think we should use FAS.						
4.3 customers think we should use FAS.						
4.4 board of directors thinks we should use FAS.						
4.5 suppliers think we should use FAS.						

Section 5: Threat Perception Factors **Listed below are statements on the perceived severity of fraud and the perceived susceptibility to fraud.** Please indicate the extent to which you disagree or agree by checking the appropriate number on a scale of 1 (Strongly Disagree) to 6 (Strongly agree).	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
	1	**2**	**3**	**4**	**5**	**6**
5.1 If my company is a victim of fraud, the…						
5.1.1 financial loss will most likely be serious.						
5.1.2 effect on company image will most likely be serious.						
5.1.3 effect on employees morale will most likely be serious.						
5.1.4 effect on the efficiency and productivity of my company will most likely be serious.						
5.1.5 effect on customer good-will and future business will most likely be serious.						
5.1.6 cost of investigation and prosecution will most likely be high.						
5.2 My company often worries about being a victim of fraud.						
5.3 My company's concerns about being a victim of fraud interfere with the daily operation of the company.						
5.4 My company's probability of being victim of fraud is very small.						
5.5 Compared to the average company, my company's risk of fraud is higher.						

Section 6: Control Factors **Listed below are statements on the internal and external control factors that either facilitate or constrain your company's intention to use Forensic Accounting Services (FAS).** Please indicate the extent to which you disagree or agree by checking the appropriate number on a scale of 1 (Strongly Disagree) to 6 (Strongly agree).	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
	1	**2**	**3**	**4**	**5**	**6**
6.1 In this company, people protect their own interest above all else.						
6.2 In this company people are mostly out for themselves.						
6.3 There is no room for one's own personal morals or ethics in this company.						
6.4 People are expected to do anything to further the company's interest, regardless of the consequences.						
6.5 People here are concerned with company's interests - exclusion of all else.						
6.6 Work is considered substandard only when it hurts the company's interest.						
6.7 The major responsibility of people in this company is to control costs.						
6.8 In my company, sound integrity and ethical values particularly of top management are effectively developed and understood.						
6.9 The board of directors in my company understands and exercises governance and oversight responsibilities related to internal control.						
6.10 Management philosophy and operating style in my company support achieving effective internal control.						
6.11 My company's organizational structure supports effective internal control.						
6.12 In my company, management and employees are assigned appropriate levels of authority and responsibilities to facilitate effective internal control.						
6.13 In my company the process of identifying, analyzing and managing risks is effective.						
6.14 The information and communication process in my company captures and provides information to appropriate personnel effectively.						
6.15 My company's policies and procedures are carried out effectively and necessary actions are consistently taken to address risks.						
6.16 My company's management effectively monitors controls to consider whether they are operating as intended.						
6.17 The cost of using FAS would influence my company's decision to use FAS.						
6.18 My company cannot afford the cost of acquiring FAS.						
6.19 Acquiring FAS is expensive.						

Section 6: Continued Please indicate the extent to which you disagree or agree by checking the appropriate number on a scale of 1 (Strongly Disagree) to 6 (Strongly agree).	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
	1	**2**	**3**	**4**	**5**	**6**
6.20 Government regulations place an increased responsibility on my company to detect and prevent fraud.						
6.21 Government will impose penalties on officers from my company who certify financial statements and disclosures that they know are false.						
6.22 Regulatory authorities' guidelines indirectly require my company to use FAS.						
6.23 Government will insist that my company uses FAS in the event of a major fraud.						

Section 7: Intention to use Forensic Accounting Services (FAS) **Listed below are statements on the company's intention to use Forensic Accounting Services (FAS) for fraud detection and prevention.** Please indicate the extent to which you disagree or agree by checking the appropriate number on a scale of 1 (Strongly Disagree) to 6 (Strongly agree).	**Strongly Disagree**	**Disagree**	**Somewhat Disagree**	**Somewhat Agree**	**Agree**	**Strongly Agree**
	1	**2**	**3**	**4**	**5**	**6**
7.1 My company is willing to use FAS for the detection and prevention of fraud.						
7.2 My company would prefer to use FAS for the detection and prevention of fraud in future.						
7.3 My company would use FAS for the detection and prevention of fraud whenever possible.						
7.4 Given a choice, my company would prefer not to use FAS for any fraud detection and prevention.						

********* END OF SURVEY *********

Thank you very much for your time and cooperation in completing this questionnaire!

REQUEST FOR INFORMATION (OPTIONAL)

If you would like to know the results of this survey, please fill the necessary details:

Name of respondent : _____

Name of company : _____

Mailing address : _____

_____

_____

E-mail : _____

Delivery preference (Please tick the box) : ☐ Hard Copy (post mail) ☐ Ms Word (e-mail)

Appendix 5

8 October 2008

Dear Sir/Madam,

SURVEY ON THE USE OF FORENSIC ACCOUNTING SERVICES FOR FRAUD DETECTION AND PREVENTION

Recently I sent you a questionnaire on the predominant factors that influence the intention to use forensic accounting services by large Malaysian companies. If you have already returned the questionnaire, I would like to thank you for your kind contribution in providing valuable information towards understanding the use of forensic accounting services in Malaysia.

If you still have not completed it, please consider completing and returning it promptly in the reply paid envelope provided (the questionnaire is attached). If you have any questions or concerns, please call me on 012-2345018 or email me at g.muthusamy@postgrad.curtin.edu.au. I look forward to your contribution towards this study.

I appreciate your time and effort in completing this survey.

Thank you for your kind consideration and help.

Yours sincerely,

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