

**School of Accounting
Curtin Business School**

**The Determinants of Financial Ratio Disclosures and
Quality: Australian Evidence**

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**This thesis is presented for the Degree of
Doctor of Philosophy
of
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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 acknowledgement 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:.....

Date:.....

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Abstract

This thesis seeks to explain the extent and quality of financial ratio disclosures within the 2007 annual reports of 300 Australian listed firms. Agency theory is utilised as the underlying theoretical framework. The extent of financial ratio disclosures (EFRD) is captured through a 43-item financial ratio disclosures index. A 12-item qualitative matrix using the IASB Conceptual Framework is created measuring the quality of financial ratio disclosures (QFRD).

The findings reveal that the EFRD of sample firms is 5.3%. Share Market Measures, Capital Structure and Profitability are slightly more popular ratios (still below 10%) with virtually no communication of the Liquidity and Cash Flow sub-categories. The QFRD disclosure is 37.8%. Reliability and Understandability are better handled, followed by Comparability and Relevance qualitative characteristics.

Regression analysis indicates firm size and ownership concentration are statistically significant predictors of EFRD. Larger firms with greater disperse ownership structure disclose financial ratios more extensively than their smaller counterparts. Larger firms also provide more qualitative information supporting the use of financial ratios. Better corporate governance structures and greater capital management initiatives do not appear to explain the extent or quality of financial ratio disclosures.

These thesis findings have important implications for understanding managerial communication incentives as they relate to the extent and quality of financial ratio disclosures within the annual reports of ASX listed firms. One key policy implication is that financial ratio disclosures are a valuable tool highlighting major financial and operational characteristics of firms. Small firms and those firms with less concentrated ownership structures should consider allocating further resources in disclosing financial ratio information. Accounting policy makers can reasonably target loss making firms and non-Big4 clients with the view of providing mechanisms to enhance financial ratio disclosures. Such moves are desirable since accountability, transparency and adherence to corporate governance attributes would likely be enhanced.

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Glossary of Key Abbreviations

AASB	Australian Accounting Standards Board
ANOVA	Analysis of Variance
ASIC	Australian Securities and Investment Commission
ASX	Australian Stock Exchange
AUDNAME	Auditor's Name
AUDTYPE	Auditor Type
CF	Cash Flow
CG	Corporate Governance
CLERP 9	Corporate Law Economic Reform Program 9
CM	Capital Management
CS	Capital Structure
DT	Deloitte & Touche
ED	Exposure Draft
EFRD	Extent of Financial ratio disclosures
EPS	Earnings Per Share
EY	Ernst & Young
FASB	Financial Accounting Standards Board
FSIZE	Firm Size
GAAP	Generally Accepted Accounting Principles
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IASC	International Accounting Standards Committee
IFRS	International Financial Reporting Standards
IND	Industry
KPMG	KPMG Peat Marwick
LEV	Leverage
NAF	Non-audit Fees
OC	Ownership Concentration
OLS	Ordinary Least Square
PLF	Profit/ Loss firm
PROF	Profitability
PWC	Price Waterhouse Coopers
QFRD	Quality of Financial ratio disclosures
S&P/ASX 100	Standard & Poor/ Australian Stock Exchange 100
SMM	Share Market Measures

Glossary of Key Definitions

	Key Definitions
Financial Ratio	Mathematical relation between two quantities (Subramanyam and Wild 2009, p. 33).
Voluntary Disclosure	Disclosure in excess of requirements – represent free choices on the part of company management to provide accounting and other information deemed relevant to the decision needs of users of their annual reports (Meek <i>et al.</i> 1995, p. 555).
Corporate Governance	The system by which companies are directed and managed (ASX Corporate Governance Council 2003, p. 3).
Conceptual Framework	Identifies the nature, subject, purpose and broad content of general-purpose financial reporting and the qualitative characteristics that financial information should possess (Deegan 2007, p. 53).
Capital Management	Capital structure of a corporation refers to how their assets are financed through some combination of equity, debt, or hybrid securities. Core capital management initiatives include capital raising activities, takeover and merger activities, overseas cross-listings and the existence of international operations (Taylor <i>et al.</i> 2008).
Firm Size	Measured as total assets. In this thesis, the natural logarithm of total assets is used (Morton and Harrison 2009).
Accountability	The responsibility to provide information to enable users to make informed judgements about the performance, financial position, financing and investing, and compliance of the reporting entity (AASB 2009a, p. 1).
Transparency	Transparency is a process by which information about existing conditions, decisions and actions is made accessible, visible and understandable to outside investors and stakeholders (Bushman <i>et al.</i> 2004).
Qualitative Disclosure	Disclosure of information that has met the qualitative characteristics of relevance, reliability, comparability and understandability.
Understandability	Information has the quality of understandability when the information

	provided in financial statements is readily understandable by users, which are assumed to have a reasonable knowledge of business and economic activities and accounting and a willingness to study the information with reasonable diligence (AASB 2004, p. 16).
Relevance	Information has the quality of relevance when it influences the economic decisions of users by helping them evaluate past, present or future events or confirming, or correcting, their past evaluations (AASB 2004, p. 17).
Reliability	Information has the quality of reliability when it is free from material error and bias and can be depended upon by users to represent faithfully that which it either purports to represent or could reasonably be expected to represent (AASB 2004, p. 18).
Comparability	Users must be able to compare the financial statements of an entity through time in order to identify trends in its financial position and performance. Users must also be able to compare the financial statements of different entities in order to evaluate their relative financial position and performance (AASB 2004, p. 19).

Related Thesis Publications

Refereed Journal:

Aripin, N., G. Tower, and G. Taylor (2009). Better understanding voluntary disclosures in Australia, *Journal of Contemporary Issues in Business and Government*, 15(2), pp. 1-16.

Professional Journal:

Aripin, N., G. Tower, and G. Taylor. 2008. Where are the ratios? *National Accountant*, 53-54, June-July.

Refereed Conference Papers:

Raja Ahmad, R. A., G. Tower, J. Plummer, and **N. Aripin**. 2010. Accountability and communication of water. 33rd Annual Congress of the European Accounting Association (EAA), 19-21 May 2010, Istanbul, Turkey.

Tower, G., **N. Aripin**, R. A. Raja Ahmad, S. Tower, and J. Woolen. 2010. Corporate governance systems' impact on the global automotive industry's communication of financial ratios. Paper submission for 2010 American Accounting Association (AAA) Annual Meeting, 31 July-4 August 2010, San Francisco, California, USA.

Aripin, N., G. Tower, and G. Taylor. 2010. Linkages between ownership concentration and financial ratio communication. Paper submission for Accounting and Finance Association of Australia and New Zealand (AFAANZ) Annual Conference, 4-6 July 2010: Christchurch, New Zealand.

Ho, P., **N. Aripin**, and G. Tower. 2010. Determinants of communication of key financial data over turbulent times. Paper submission for Accounting and Finance Association of Australia and New Zealand (AFAANZ) Annual Conference, 4-6 July 2010: Christchurch, New Zealand.

Aripin, N., G. Tower, and G. Taylor. 2009. Reflections on the 'quality' of financial reporting. Asian-Pacific Conference on International Accounting Issues, 22-25 November 2009: Las Vegas Nevada, USA.

Aripin, N., G. Tower, and G. Taylor. 2009. Reporting financial ratios in annual reports: Voluntary disclosure perspective.

Asian Academic Accounting Association (AAAA) Annual Conference, 16-17 November 2009: Istanbul, Turkey.

Aripin, N. 2009. A critique of financial ratio communication in Australian annual reports. Curtin Business School (CBS) Doctoral Colloquium 2009, 1-2 October 2009: Perth, Australia

Aripin, N., G. Tower, and G. Taylor. 2008. Insights on quality of reporting and financial ratio disclosures. Paper accepted for Annual Congress of the European Accounting Association (EAA), 12-15 May 2009: Tampere, Finland.

Aripin, N. 2008. Qualitative disclosure patterns of financial ratio information of Australian listed firms. Curtin Business School (CBS) Doctoral Colloquium 2008, 2-3 October 2008: Perth, Australia.

Aripin, N., G. Tower, and G. Taylor. 2008. The determinants of financial ratio disclosures and quality: Australian evidence. Accounting and Finance Association of Australia and New Zealand (AFAANZ) Annual Conference, 6-8 July 2008: Sydney, Australia.

Aripin, N. 2008. The determinants of financial ratio disclosures and quality: Australian evidence. Accounting and Finance Association of Australia and New Zealand (AFAANZ) Doctoral Consortium 2008, 2-4 July 2008: Sydney, Australia.

CHAPTER 1: OVERVIEW OF THE STUDY

1.1 Introduction

This thesis empirically examines the *extent* and *quality* of financial ratio disclosures (EFRD and QFRD) of Australian Stock Exchange listed firms within the annual reports for the 2007 financial year. An index consists of 43-ratio items is developed to calculate the extent of financial ratio (EFRD) disclosure. Further, in order to measure the quality of financial ratio disclosure (QFRD), a matrix of qualitative characteristics is evolved. This matrix is developed based on the qualitative characteristics of accounting information recommended in the Conceptual Framework issued by International Accounting Standards Board (IASB) and its equivalent by the Australian Accounting Standards Board (AASB). Agency theory is used to explain the level of EFRD and QFRD, specifically to examine the influence of corporate governance structure, capital management initiatives, ownership concentration and firms' characteristics on the companies' reporting practices. The results of this doctorate will assist in obtaining a better understanding of managements' communication of financial ratio information in their annual reports.

1.2 Overview of Project

The Department of Foreign Affairs and Trade Australia¹ posits several motivating factors for foreign companies to invest in Australia including: growing foreign direct investment, strong economic credentials, strategic democratic and political stability, business friendly regulatory environment, highly skilled and

¹ The Australian Trade Commission (Austrade) was created to help international companies develop trade and investment connections with Australia (Source: <http://www.austrade.gov.au/Invest/Investment-Specialists/How-Austrade-can-help/default.aspx>)

multilingual workforce, cost competitive location, innovative culture with excellent R&D and infrastructure, strong and sophisticated financial services sector, and excellent quality of life. To better understand the incentives and opportunities, it is essential to provide investors with crucial information for them in making investment decisions (Cook and Sutton 1995).

One important platform in promoting companies' information is through their annual reports. This is due to the fact that annual reports are a major source of company information (Sommer 1972; Stanga 1976; Botosan 1997). According to Stanton *et al.* (2004), the annual report performs the classic and statutory formal communication medium between a publicly listed corporation and its interested stakeholders. The annual report is considered a credible source of information because it is regulatory compliant; allows for an assessment of the management incentives of communication; and has been subject to the audit process (Courtis 1995). Further, Buzby (1974) suggests that information provided in the annual reports is perceived as important by the accountants, preparers and users. More recent studies incorporating annual reports also have been carried out by researchers (Aljifri and Hussainey 2007; Beattie and Jones 1992; Beattie *et al.* 2004; Chatterjee 2007; Courtis 1995).

Annual reports also serve as a platform for companies to inform readers about their performance and activities for the financial year. It provides financial and non-financial information; as well as past, current and future prospects of the firm. The annual report can also be viewed as providing mandatory and voluntary information. Mandatory reporting is based on specific rules and regulations including the *Corporation Act 2001* and International

Financial Reporting Standards (IFRS). On the other hand, voluntary reporting is not required by any rules to be provided in the annual reports. Examples include a description of a firm's operations, general and strategic information, and various financial data including financial ratios.

According to the *Framework for the Preparation and Presentation of Financial Statements* issued by AASB (2004, p. 13), the objective of financial reports is "to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions". Financial reports also should provide users with relevant, reliable, comparable and understandable information. However, arguably financial statements cannot provide all the information needed by all type of users even when fully compliant with accounting standards. Thus, firm managers are motivated to provide extra information to reduce informational asymmetries between the firm and its stakeholders.

This thesis seeks to explain the voluntary communication of financial ratios in annual reports. It is argued that financial ratio reporting is a positive initiative of management to communicate essential financial and operational information. For the purpose of this study, a financial ratio is defined as a mathematical relation between two quantities (Subramanyam and Wild 2009). Importantly, this research examines both the *extent* and *quality* of financial ratio information disclosed. The *extent* measures the number of financial ratio disclosures, while *quality* describes the qualitative characteristics surrounding the reported financial ratios. Communication of financial ratio information is considered voluntary as there are no accounting standards mandating

disclosure in companies' annual reports. An exception is earnings per share which is required to be disclosed by the AASB (2007).

A financial ratio disclosure (EFRD) index is developed based on the past literature (Stickney *et al.* 2004; Hoggett *et al.* 2006; Wild *et al.* 2007; Bergevin 2002; Fridson and Alvarez 2002; Horngren *et al.* 2006; Hoskin 1994; Mitchell 2006; Watson *et al.* 2002; Subramanyam and Wild 2009) to investigate the extent of financial ratio disclosures in annual reports. Additional analysis of five major sub-categories of financial ratio information (*Share Market Measures, Profitability, Capital Structure, Liquidity and Cash Flow*) is provided to gain further insights on these disclosure practices (Mitchell 2006).

In addition, the quality of financial ratio disclosures is measured using the four key qualitative characteristics of financial information embedded within the *Framework for the Preparation and Presentation of Financial Statements* issued by the International Accounting Standards Board (IASB 1989). Qualitative characteristics are the attributes that make the information provided in financial statements useful. These qualitative characteristics are *relevance, reliability, comparability* and *understandability*. This Framework is utilised by a significant proportion of national accounting standard-setting bodies including the AASB and represents a means to measure disclosure quality. Further, these overarching principles are widely accepted both by academics and practitioners as a measure of quality (Giordano-Spring and Chauvey 2007; Jonas and Blanchet 2000; Chatterjee *et al.* 2008). It is believed that the utilisation of the framework is relevant for this study as they focus on the users of the financial statements. Thus, it is considered particularly important to

measure not only the extent of disclosure, but also the quality of the information.

1.3 Research Objectives and Questions

Using a positivist empirical study, this thesis analyses the voluntary disclosure framework in determining 'what' financial ratios are reported/not reported and 'why' or 'why not' they are disclosed. This study provides evidence on financial ratio disclosures patterns in the annual reports of 300 Australian listed firms for the 2007 financial year. Using agency theory, this thesis predicts that corporate governance, capital management activities, ownership concentration and firm size influence the extent and quality of financial ratio disclosures in companies' annual reports. Larger firms with stronger corporate governance structure, greater capital management initiatives and less concentrated ownership structures are expected to have more extensive and better quality financial ratio disclosures.

Overall, this research seeks the answer for the key research question: Do corporate governance, capital management initiatives, ownership concentration and firm size help explain the extent and quality of financial ratio disclosures in the annual reports of Australian listed companies?

The following subsidiary questions are also examined:

1. What is the extent of disclosures of financial ratio information in the annual reports of Australian listed companies?
2. What is the quality of disclosures of financial ratio information in the annual reports of Australian listed companies?

3. What are the significant predictors influencing the extent of financial ratio disclosures in the annual reports of Australian listed companies?
4. What are the significant predictors influencing the quality of financial ratio disclosures in the annual reports of Australian listed companies?

In addition, the possible reasons why management decides to communicate financial ratios are explored.

1.4 Research Gap and Contribution of the Thesis

Issues on voluntary financial reporting in the annual reports have received considerable attention from researchers globally. These studies cover various topics such as, but not limited to, factors motivating voluntary disclosure (Barako *et al.* 2006); comparisons of voluntary reporting of two different regions (Guthrie *et al.* 2006); cost and benefits of voluntary disclosure (Depoers 2000); the effect of information disclosures on firms' value (Boot and Thakor 2001); and motivations and limitations of voluntary disclosure (Graham *et al.* 2005). Voluntary disclosure studies are essential because they serve to highlight managerial disclosure incentives which are often linked back to activities and events undertaken by a particular firm and its resources. Ho and Wong (2001) suggest voluntary disclosure and its determinants have been identified as an important research area since the 1970s.

Healy and Palepu (2001) reviewed past studies relating to firms' disclosure practices, including voluntary disclosures. They summarise the motives for voluntary disclosure as: capital market-based, corporate control contest, stock compensation, litigation cost, and management talent signalling and proprietary cost

hypotheses. In a different perspective of voluntary disclosure, Wandler (2007) suggests two reasons underlying voluntary disclosure: advancing optimistic views and providing a better picture in order to reduce information asymmetry. While Graham *et al.* (2005) posit that any deficiency of mandatory disclosure requirements serves to motivate firms to disclose information voluntarily.

In summary, studies in the past advance several reasons why companies provide information voluntarily. These include share market pressure, financing needs, as well as lowering risks and raising returns for the firms (Healy and Palepu 2001; Graham *et al.* 2005). It is also suggested that before a company makes the decision to provide voluntary information, they need to evaluate the cost and benefits of such disclosure. The costs involved could be classified as a direct or indirect. Direct costs could include the cost of data collection, data processing, data production and presentation. Indirect costs are the risk of providing information to existing and potential competitors, political conflicts of interest and possible claims from interested stakeholders. Possible benefits of voluntary disclosure could be a higher share price, lower cost of financing and lesser uncertainties linked to risk (Graham *et al.* 2005).

Financial ratios utilisation can be viewed from normative and positive perspectives (Courtis 1996). The normative approach focuses on measurement and comparison of financial ratios. On the other hand, a positive approach is when accountants or analysts, as well as researchers, apply financial ratios for forecasting or investing purposes.

Financial ratio analysis is useful for several reasons: providing insights of the underlying firms' financial condition (Subramanyam and Wild 2009), a signalling tool (Mitchell 2006), accessing and comparing company's performance (Watson *et al.* 2002) and serving as an alternative to possible misleading influence of the absolute dollar figures (Courtis 1996). In addition, financial ratios are used in predictive studies (Altman 1968; Beaver 1966; Neophytou and Molinero 2004). Horrigan (1965) argues that financial ratios are an efficient predictor of a variety of financial problems and future profitability of firms. Other recent studies utilising financial ratios include Morton and Harrison (2009), Zulkarnain *et al.* (2002) and Osteryoung *et al.* (1992). While Gibson (1982, p.18) states that "probably no tool is more effective in evaluating the financial future of a company than the proper use of financial ratios".

The disclosure of financial ratios in the annual reports is driven by several motives. Firstly, disclosures can enhance the understanding of stakeholders by providing them with a quick and simple tool highlighting firms' performance. Assessment of firm performance can be further enhanced if the ratio data is presented using graphs or tables (Courtis 1996) that depict changes over time. Secondly, communicating financial ratio information can provide users of financial statements with new information that is not comprehensively presented in any single media (Watson *et al.* 2002). This information is likely to be even more meaningful for non-sophisticated users in evaluating and making informed investment decisions.

A study conducted by ASX² (2006) reveals that among 921 direct investors, only 12% of them self-rated themselves as very knowledgeable. Almost half (47%) of them believed that they are somewhat knowledgeable, while the other 31% and 10% admit to being not very knowledgeable and not at all knowledgeable investors respectively. It seems that more than 40% of direct investors in Australia are not sophisticated investors. Hence, it can be argued that this group of investors should be provided with potentially useful information such as financial ratios to get a better picture of firms' performance before making any investment decisions.

In addition, ASX study also indicates that Australian investors rely on newspapers (42%), friends/ family (31%), internet (30%) and financial planners (26%) as the most popular sources of advice and information (ASX 2006). One possible reason is that the media is easy to access as compared to more formalised systems such as annual reports. Another possible reason is that annual reports are too technical for certain users to understand and thus might be less effective in communicating financial ratios. Thus, in enhancing the usefulness of financial reporting in the annual reports, it is critical for a company to communicate a comprehensive set of financial ratios (Gibson and Boyer 1980).

With regards to information and communications technology (ICT), The Department of Foreign Affairs and Trade Australia (2008) highlight that Australia is a top four and top eight country for internet use and per capita computer use respectively. Australia also ranks number four in the world and second in the Asia-Pacific region in term of e-readiness, a measure of country's information

² '2006 Australian Share Ownership Study' provides information on the attitudes, knowledge and behaviour of retail investors towards share investing in Australia (Source:<http://www.asx.com.au/resources/publications/index.htm>).

and communication technology and the ability of businesses and consumers to use ICT to their advantage. In line with this sophisticated information, businesses are encouraged to provide their annual reports on the companies' websites for ease of access.

Further, some ratios are impossible to be calculated by readers because of the non-availability of inside information (Gibson 1982). Therefore, providing such ratios in the annual report could offer important additional insights of firms' financial health position to the readers. Alternatively, disclosure of financial ratios would efficiently reduce the time and cost of obtaining and processing information (Watson *et al.* 2002). Graham *et al.* (2005) suggest that among the reasons why companies choose to provide voluntary information is the reduction in the cost of capital and to provide important information to investors that is not included in mandatory financial statements. Arguably, when companies disclose financial ratios in the annual report, their management is communicating the importance of such data to the stakeholders. By providing such voluntary disclosure, managers must believe that the benefits outweigh its cost (Watson *et al.* 2002).

Despite their stated importance, there typically is a paucity of financial ratio information disclosed in company's annual reports. To date there has been little agreement on what should be disclosed within the annual report due to the voluntary nature of financial ratio disclosures. Morton and Harrison (2009) look at financial ratio disclosures both before and after the introduction of International Financial Reporting Standards (IFRS) by Australian companies using content analysis. Their finding shows that the consumer industry provides the highest incidence of at least one financial ratio and that larger, profit making firms with a higher proportion of independent directors on the board disclose more

ratios than their counterparts. However, their study does not specify what ratios were examined, thus making direct comparisons impossible.

Mitchell (2006), using 1991 data, suggests that share market measures and profitability ratios are the most informative and relevant items to be provided in the annual reports; and concludes that the extent of financial ratio disclosures is explained by firms with higher leverage and return on equity, greater number of analyst following, as well as a lower percentage of top 20 shareholding. Watson *et al.* (2002) study in the UK highlights that measurement and disclosure of financial ratios mandated under particular accounting standards possibly would be useful because different companies tend to disclose different ratios with different formulas. Again, these past studies are hampered by the narrow or undefined choice of financial ratio selection. Therefore, this thesis provides greater insight and clarity by developing a comprehensive financial ratio disclosures index.

In addition, Gibson and Boyer (1980) provide several reasons for the need for uniform financial ratios disclosure including the lack of standardisation and computation of these figures. They also stress the need for a basic set of ratios because certain information is not readily available for computation. Finally, they feel that financial ratios should be considered as part of generally accepted accounting principles (GAAP). In different study, Courtis (1996) notes the formulas used in the reported financial ratios are not consistent within and between companies and industries.

Kaminski *et al.* (2004) show that 16 ratios are significantly different between fraud and non-fraud firms in the United States. Matsumoto *et al.* (1995) US survey concludes financial ratios are

important in the decision making process and that US analysts rank the growth rates, valuation and profitability ratios as the most important categories whereas capital turnover, cash position and miscellaneous categories are rated the least important ratios. These studies note the importance of financial ratios to a diverse set of stakeholders.

Cinca *et al.* (2005) look at a period of 14 years, across 11 European countries to assess financial ratio disclosures. Their result reveals that there are country and firm size differences for the level of financial ratio disclosures. Lantto and Sahlstrom (2009) conclude that after the introduction of IFRS, most Finland-based ratios differ from their equivalent IFRS-based ratios. Their finding supports the earlier studies that contend that the adoption of IFRS will lead to improved quality of reporting. They posit the introduction of fair value accounting and stricter requirements under the new accounting standards will contribute to greater volatility of financial ratios. Konings and Vandebussche (2004) find that Bulgarian listed firms feel that financial ratio communication is very important for signalling the financial position of the firm and to compete for funding from potential investors and creditors.

None of the aforementioned studies however measures the *quality* of financial ratio disclosures (see Appendix A). Thus, this thesis contributes to the disclosure literature by examining quality of financial ratio disclosures. Surprisingly, little direct attention has been paid to the qualitative characteristics of financial information based on the IASB's (and AASB's) Framework. These qualitative attributes are believed to be a legitimate foundation to assess the quality of reporting since they are recognised worldwide (Botosan 2004). Thus, a specific examination of the extent and quality of

financial ratios arguably generates important new insights into managerial disclosure incentives.

Overall, these aforementioned studies tend to use one of two approaches. Some studies apply survey techniques to rate the importance of financial ratios by preparers or stakeholders. Another set of studies descriptively or statistically analyse the level of financial ratio disclosures and related predictive factors. This thesis uses the latter approach to analyse what Australian firms are communicating and what explanatory factors influence the patterns of such disclosure. Further, this study also measures the quality of reported ratios in enhancing the usefulness of the financial ratios.

In summary, this thesis is significant for three main reasons. Firstly, this is the first comprehensive analysis of financial ratio disclosures for Australian companies as empirical evidence in the context of extent and quality of disclosures. Secondly, past studies on financial reporting quality tend to focus solely on the level of communication as measured by a disclosure index or content analysis rather than the inherent qualitative characteristics of the information itself. This thesis incorporates the qualitative characteristics as a matrix to evolve a measure for the quality of financial ratio disclosures. Thirdly, there are hypothesised associations between corporate governance, capital management initiatives, ownership concentration and firms' characteristics and the financial reporting practices by companies. This doctorate aims to test these elements in relation to financial ratio disclosures to develop a better understanding of how and why these ratios are disclosed since to date there is no study that examines the link between corporate governance, capital management and financial ratio disclosures.

1.5 Assumptions and Limitations

This thesis has certain assumptions and limitations. Similar to most disclosure studies, this study assumes the annual report is the main source of business information, including financial, non financial, accounting, economic and social information. It is assumed that users would refer to the annual reports of companies in gathering information and for making decisions. Thus, other information sources such as the prospectus, press media reports and news, company announcements, quarterly reports and earnings announcements, either available in a traditional way of reporting or electronically have been not included in this doctorate.

Further, this thesis incorporates a representative sample of 300 Australian firms listed on the ASX, which are randomly selected from all industry categories. This study excludes other listed firms and the entities that are not listed on the ASX. From a statistical point of view, 300 companies are considered sufficient to represent the whole population³ of ASX listed companies.

In addition, only one year (2007) of data is gathered for this doctorate and thus provides a cross-sectional basis of research. This approach limits the analysis on trends and comparison of financial ratios disclosure patterns between years. The 2007 year was chosen as many firms just completed their first annual IFRS based financial statements. Changes in the recognition, measurement and disclosure of financial statement elements on transition to IFRS in Australia are reflected in key financial ratios. It is more likely that any issues arising from IFRS adoption would be highlighted in the annual reports in the 2007 year. By adopting international accounting standards in preparing the financial

³ There are approximately 2000 listed firms at the end of 2007 (Source: http://www.asx.com.au/research/market_info/historical_equity_data.htm#No%20of%20Companies).

statements, the comparability and quality of the documents is thought to be enhanced (AASB 2009b). This data set usage responds well to Mitchell's (2006) suggestion to carry out research on this topic using more recent data.

Another limitation is the development of indices in order to capture the EFRD and QFRD. The EFRD contains 43-ratio items developed based on past literature. Any specific item that is not included in this disclosure index but reported in the annual reports is not considered when calculating EFRD. As there is a possibility of hundreds of financial ratios, this study utilises only 43 well established ratios. In relation to the QFRD index, this is an original and novel attempt to measure ratio disclosure quality based on the qualitative characteristics within IASB/AASB Conceptual Framework. It thus provides a new approach to reporting quality measurement.

1.6 Thesis Outline

This thesis is organised as follows. Chapter One provides an overview of the research study including its direction, research questions and importance of the study. Chapter Two, followed by Chapter Three, reviews the previous literature on the *extent* and *quality* of financial ratio disclosures respectively. Hypotheses to be tested in this doctorate are developed in these chapters using agency theory. The research methodology is discussed in Chapter Four. It explains how every variable is measured and collected as well as what statistical techniques are utilized. Chapter Five then reveals the descriptive findings of the firms' characteristics, including the dependent, independent and control variables used. Chapter Six presents the data analysis for the EFRD and its five major sub-categories, while Chapter Seven provides the findings

for the QFRD and its four sub-categories. Finally, Chapter Eight focuses on the summary, implications, contribution and recommendations for the project.

CHAPTER 2: LITERATURE REVIEW - EXTENT OF DISCLOSURE

2.1 Introduction

This chapter provides an overview of the extant literature on financial ratio disclosures and offers insights into managerial disclosure incentives using agency theory. An overview of agency theory is provided and related back to disclosure incentives (Section 2.2). This review provides the theoretical background that will assist in answering the research questions.

The motivation for firms to voluntarily disclose information and the benefits of increased disclosure are highlighted in Section 2.3. Further, Section 2.4 outlines the empirical findings of past literature focussing on the influence of corporate governance and firm specific characteristics on voluntary financial reporting practices. This leads to the hypotheses development for extent of disclosure. Finally, Section 2.5 summarise this chapter.

2.2 Agency Theory

In empirical positive accounting research, agency theory is argued to offer the best theoretical background to explain managerial disclosure incentives. For instance, Eisenhardt (1989) posits that agency theory is the most relevant explanation for substantial goal divergence situations between principals and agents, as well as for the problem of information asymmetry. This view is relevant for this thesis in investigating the rationales of management's reporting policy of financial ratios to the users. In this section, an overview of agency theory is provided and linked to disclosure policy generally and communication of financial ratio specifically.

2.2.1 Overview

This research employs agency theory to assist in determining suitable factors that could influence voluntary financial ratio disclosures patterns. Agency theory is concerned with the relationship between the principal (owner) and agent (manager) of the firm. The underlying basis of agency theory is that one party (the principal) assigns work to another (the agent) who performs that work. According to Jensen and Meckling (1976, p.308), agency relationship is defined as "...a contract under which one or more persons (the principal/s) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent". Barley and Means suggest, "...an inevitable conflict of interest exists between the shareholders and the officers in a giant corporation, if share ownership is widely diffused", as cited in Hessen (1983, p.277). Therefore, this concept is applicable for public companies owned by various shareholders and managed by the management team appointed by the shareholders.

Jensen and Meckling (1976) explain that agency theory enhances understanding of the situation where separate ownership and control between owner and top management of the firm occurs. They also suggest that these parties have their own concerns and preferences giving rise to what is known as a 'conflict of interest'. A conflict of interest arises from divergent goals between the principal and agent, and difficulties in monitoring agents' actions (Eisenhardt 1989).

According to Fama and Jensen (1983), a considerably high cost is needed to monitor the actions and decisions made by an agent. This is because full monitoring of an agent's actions seems unlikely in any principal-agent contract especially for large firms in

developed industrial societies (Scott 1997). This argument is in line with Akerlof (1970) who argues information asymmetry or a 'lemons' problem exists that originates from divergence of information and motivation between shareholders and managers. Again, this perspective well explains the potential agency conflict.

Further, Jensen and Meckling (1976) highlight agency costs as a component of expenditures incurred by the principal to monitor the agent, the agent's cost on bonding, and the residual loss. In addition, Healy and Palepu (2001) suggest the resolution to agency problems may require formal contracts, monitoring of management by the board of directors, information intermediaries and the market for corporate control. This argument is in line with that of Fama and Jensen (1983) who posit effective control procedures are crucial to minimise the potential for the agent to engage in opportunistic behaviour.

Whilst some commentators feel that agency theory is too narrow in its sole economic focus, the vast majority of past voluntary disclosures studies adopt this approach because of its ability to well explain corporate communication decisions.

2.2.2 Information Asymmetry and Disclosure Policy

A major agency problem is information asymmetry where the agents possess and utilise information for their own personal welfare, which the principal may not possess. This happens because it is assumed that the owner cannot explicitly scrutinise the manager's behaviour (Beaver 1998; Scott 1997). An example of this situation is where a team of managers may have inside information on the positive future of a firm and take action and make decisions that will mostly benefit them at the potential

expense of the principal. In such cases financial ratios may mitigate information asymmetry situations. Thus, it is believed that agency theory and the problem of information asymmetry is relevant in explaining management incentives regarding communication of financial ratios information.

McNally *et al.* (1982) analyse the interaction between user preferences, firm attributes and disclosure practices of voluntary information in a New Zealand context. To get a view of user preferences, questionnaires were sent to financial editors and stock exchange members. They also incorporated the firm's attributes such as financial characteristics, auditor and industry classification. McNally *et al.* (1982) find significant differences between the level of disclosure practised by companies and the level of disclosure perceived as important by users. The results of their study demonstrate that information asymmetry between managers and stakeholders contribute to disclosure practices of firms. Thus, this thesis aims to specifically investigate the disclosure of financial ratios as the mechanism to reduce the information asymmetry.

A classic study on voluntary interim reporting by Leftwich *et al.* (1981) outline three monitoring devices which can reduce agency costs. There are publication of accounting reports, appointment of outside directors and listing requirements of stock exchanges. In Denmark, Petersen and Plenborg (2006) investigate the level of voluntary disclosure that affects informational asymmetry for individual industrial companies listed on the Copenhagen Stock Exchange. By analysing the annual reports of 36 companies for the period 1997-2000, they examine whether voluntary disclosure does have an impact on information asymmetry. The theoretical foundation employed for their study is that the information asymmetry should be reduced by greater disclosure. Kelly (1994)

notes that diversification can lead to higher agency cost of debt and equity capital. Overall, these studies show that disclosure can help reduce the cost of monitoring managers' use of corporate assets for self-interested purposes. Therefore, based on these findings, the reporting of specific financial ratios is investigated from the perspective of agency theory.

In addition, McKinnon and Dalimunthe (1993) study the level of voluntary disclosure of segment information in Australia. One of the variables that attract their attention is the presence of minority interests of firms. They find favourable support that Australian diversified firms are more likely to voluntarily disclose segment information if they have minority interests in their subsidiary companies. This result indicates that disclosure of segment information provides incentives to align the interests between managers and minority interests and is therefore likely to reduce information asymmetry problems.

Botosan and Harris (2000) test the association between cost of capital and extent of disclosures. They argue that having more frequent disclosure should trim down the cost of capital by reducing the uncertainty of a firm's value. Their evidence suggests that U.S. firms initiating quarterly segment disclosures experience an increase in information asymmetry, which is measured by analysts' consensus. They conclude that managers use disclosure policy to alleviate the higher information asymmetry situation of firms. Using this point of view, this thesis focuses specifically on the financial ratios disclosures.

Healy and Palepu (2001) argue that information asymmetry and agency conflicts between contracting parties in an organisation lead to the development of financial reporting and disclosure policy of

the firm. They posit that outside investors have less information compared to managers with regards to a firm's performance. In the real business world where the market is not perfectly efficient, they believe that managers use financial disclosure policy to balance the decisions they make and communicate to the outside shareholders. This illustrates that information asymmetry problems influence the financial disclosure policy choice of the company, including financial ratios.

Lundholm and Winkle (2006) discuss the motivation for disclosure and state that voluntary disclosure can be utilised to reduce the information asymmetry problems. They argue that conflicts arise when managers make decisions either to disclose or not disclose certain information and this often occurs because of the information asymmetry problem. In relation to this view, it is believed that by investigating the communication of financial ratios in the annual reports, the management choice of reporting/not reporting certain financial ratios could be explained.

The aforementioned discussion demonstrates that the agency problem of information asymmetry and financial ratio disclosures is an important and interesting area to consider. As asserted by Barako (2004), managers may focus on their own personal interests, rather than maximising shareholders' wealth. Thus, it is essential for shareholders to create the mechanisms to mitigate agency problems by aligning the interests between principal-agent or by monitoring the agent's opportunistic behaviour. On the other hand, in order to reduce the information asymmetry problem, the management might exercise additional voluntary reporting policies. One possible mechanism is the incentive to communicate financial ratios in the annual reports.

2.3 Advantages of Disclosure within the Annual Report

This section provides insights into the benefits of increased disclosure quantity. It is based on the argument that firms should provide sufficient decision-useful information to their stakeholders. Knauss (1964, p.607) posits that "...disclosure, however, is not a simple method of regulation having universal application and universal effectiveness. It assumes a different role and meaning depending on the information to be disclosed, and the parties for whom the information is intended".

Botosan (2006) traces the development of accounting-based disclosure literature and a firm's cost of capital. She highlights two streams of research related to agency theory. Firstly, she outlines that disclosure reduces cost of equity capital by reducing risk. Secondly, she suggests that reporting reduces the cost of equity capital by reducing information asymmetry and/or transaction costs. This is based on the assumption that public disclosure mitigates information asymmetry by displacing private information. She also concludes that existing theory strongly supports the hypothesis that greater disclosure reduces cost of equity capital. Further, Lundholm and Winkle (2006) develop and utilise the same theoretical framework in summarising the existing empirical work in the voluntary disclosure area.

Diamond and Verrecchia (1991) find that disclosure reduces information asymmetry and cost of capital. Their study demonstrates that as more information is disclosed to users, a lower cost of capital is achieved. This is due to a smaller gap of information between managers and agents. Thus, more disclosure benefits both the firm and its stakeholders. Furthermore, Welker (1995) argues that higher disclosure by the firms reduces the bid-ask spread. The results are consistent with the argument where the

bid-ask spreads are negatively related with disclosure policy. The result also provides evidence that high institutional holdings and high standard deviation of share turnover seem to intensify the relationship between disclosure policy and spread.

In a related study, Leuz and Verrecchia (2000) examine the 1998 annual reports of 102 German firms included in the DAX 100 stock index. They discover that firms in Germany which decided to adopt either US GAAP or the IAS are likely to have greater disclosures. Using agency theory, they propose that companies which switch to international reporting standards have lower bid-ask spreads, higher trading volumes and lower share price volatility. This research again provides evidence on the linkages between agency theory and disclosure practices of the firms.

Using a sample of 97 firms, Healy *et al.* (1999), study the relationship between share performance and extent of voluntary disclosure. They report that increased disclosure is associated with increases in stock performance, growth in institutional ownership, increased stock liquidity and higher analyst coverage.

Lang and Lundholm (1996) note that firms which disclosed more future-orientated information to users have several positive consequences. By disclosing more future information, it reduces uncertainty and information asymmetry, improves accuracy of users' expectation and attracts analysts' attention. In addition, provision of forward looking information reduces the cost of capital. Thus, it implies that more disclosure of future-orientated information reduces uncertainty of users.

In investigating the relationship between disclosure and firms' share price and liquidity, Bloomfield and Wilks (2000) evidence that

increased disclosure has a direct effect of stock prices because investors are willing to buy stock at a higher price when the return is certain. Disclosure also has a direct effect on liquidity because it encourages investors to sell at lower prices and buy at higher prices. Their results demonstrate that more extensive disclosure is likely to increase both stock prices and liquidity of firms. On the other hand, Boot and Thakor (2001) suggest that information exposure encourages better price transparency in developed markets compared to that in emerging markets. They also argue that mandatory reporting is only important in addressing time, consistency and agency problems, despite encouraging voluntary disclosure. They conclude that disclosure could be enhanced by improving the process of gathering information. Thus, it is believed that the disclosure of financial ratios as a voluntary nature may also provide positive contributions.

Evans and Sridhar (2002) investigate how disclosure may influence capital markets, product markets and shareholder litigation. They argue that favourable disclosure lead to a lower cost of capital. However, they also imply that disclosure could increase proprietary costs where rivals may enter the market as well. Thus, there is a trade-off between cost of capital and proprietary cost in making decisions about disclosure policy.

Graham *et al.* (2005) list five factors that motivate firms to voluntary disclose information. These are information asymmetry, increased analyst coverage, corporate control test, stock compensation and management talent. On the other hand, they suggest constraints on voluntary disclosure which are litigation risk, proprietary costs, political costs and agency cost, and limitation of mandatory disclosure precedent that may be hard to maintain. They survey and interview more than 400 executives and

find that firms make voluntary disclosures for three main reasons: (1) to promote reputation for transparent reporting; (2) to reduce the information risk assigned to the firms' stock; and (3) to address the deficiencies of mandatory reporting.

To conclude, previous studies have reported ample evidence on the positive impact of disclosure to the firms and shareholders. Several studies have applied agency theory in explaining the choice of disclosure policy by the firms. It is suggested that voluntary disclosure, in addition to mandatory disclosure, reduces the information asymmetry problem and therefore enhances better informed decision making. This notion applies to voluntary financial ratio disclosures. Despite its obvious benefits and functions, the amount of research on voluntary disclosure of financial ratios is still low. Therefore, this study explores factors that encourage firms to voluntarily disclose financial ratios in their annual reports.

2.4 Empirical Studies and Hypotheses Development

A considerable amount of literature has been published on this voluntary financial reporting (Barako 2004; Eng *et al.* 2001; Botosan 1997; Meek *et al.* 1995; Hossain *et al.* 1994; Cooke 1989; Chow and Wong-Boren 1987; McNally *et al.* 1982). While a variety of definitions of the term voluntary disclosure have been posited, this thesis utilises the definition provided by Meek *et al.* (1995, p. 555), who define it as "...disclosure in excess of requirements – represent free choices on the part of company managements to provide accounting and other information deemed relevant to the decision needs of users of their annual reports". This section reviews previous studies that examine the association between corporate governance, capital management activities, ownership

concentration and firm's characteristics and the extent of disclosure as the agency theory mechanisms.

2.4.1 Corporate Governance and Quantity of Disclosure

This section discusses the role of corporate governance in the agent-principal relationship setting. It is suggested that corporate governance is crucial to ameliorate agency conflicts (Barako *et al.* 2006). The review starts by defining the term 'corporate governance'. In addition, this section explains previous literature on corporate governance and how it can be applied in this particular study.

Corporate governance has been globally debated and has become a especially important issue after the collapse of corporations such as Enron and Arthur Anderson. Since then, corporate governance has received considerable attention from regulatory authorities. However, according to Farrar (2005), this subject has been often considered for the last 20 years. As posited by Mallin (2007, p.14):

The call for improved transparency and disclosure embodied in corporate governance codes and in International Accounting Standards should improve the information asymmetry situation so that investors are better informed about the company's activities and strategies.

Therefore, as suggested by agency theory tenets, corporate governance could serve as one of the prime monitoring mechanisms, including disclosure policy of the firms.

In Australia, the ASX Corporate Governance Council ⁴ has recommended that Australian listed companies adopt certain governance attributes. ASX Corporate Governance Council (2003, p. 3) defines corporate governance as "...the system by which companies are directed and managed". The ASX listing rules also require disclosure⁵ of these attributes in the annual reports of listed firms and any departure from the ASX best practice governance recommendations and principles. These corporate governance principles and recommendations represent a tool used to align the interests of management and the firm's stakeholders in an Australian context.

The past literature clearly argues that corporate governance mechanisms are important as a check and balance between shareholders and managers (Eng and Mak 2003). This establishes a link between corporate governance and agency theory. The internal and external mechanisms of corporate governance are felt to be essential to moderate the self-serving activities of managers (Barako *et al.* 2006).

This thesis investigates how corporate governance may affect the disclosure pattern of financial ratios in the annual report. This will include an examination of how the strength of corporate governance structure may mitigate agency conflicts through financial ratio disclosures policy. Due to the superior information insiders may possess, managers may use financial ratio disclosures to reduce the information gap and agency conflict. Therefore, the role of corporate governance is essential to ensure that managers'

⁴ This body is formed with aims to develop and deliver framework for corporate governance to Australian business community.

⁵ Under ASX Listing Rule 4.10, companies are required to provide information in their annual reports disclosing the nature and extent of their corporate governance policies and procedures in line with the best practice recommendations released by ASX Corporate Governance Council in March 2003.

opportunistic behaviour can be monitored and controlled. By having strong corporate governance structure, greater alignment of the interests of contracting parties could be achieved. This doctorate, consistent with the suggestion of Mallin (2007), explores to what extent the implementation of 'good' corporate governance is linked to agency problems.

Barako (2004) investigates the extent of voluntary disclosures by forty-three Kenyan companies during 1992-2001. Specifically, his study examines the effect of corporate governance attributes, ownership structure and firms characteristics on voluntary disclosure practices. The findings of his research reveal that the presence of audit committee, levels of institutional and foreign ownership help explain the level of voluntary disclosure of those firms. Thus, his study provides valuable insights on the corporate reporting and corporate governance characteristics, specifically in Kenya.

Using Malaysian listed companies data, Mohd Ghazali and Weetman (2006) identify agency theory factors associated with voluntary disclosure. They examine whether the government reforms increase the awareness of disclosure as a tool of corporate governance, and thus reduce the influence of family domination of corporate boards on voluntary disclosure. They conclude that the implementation of corporate governance after the economic crisis does not substantially increase voluntary disclosure practises of Malaysia firm as compared to previous disclosure studies in Malaysia, Singapore and Hong Kong. This finding is contradictory with Ho *et al.* (2008) results, which imply the effect of corporate governance in disclosure policy of the firms, where improving governance leads to improved corporate communication.

In an Australian based study, Taylor *et al.* (2008) utilise a composite corporate governance score derived from the ASX Council's corporate governance principles and recommendations. Their result highlights a positive association between the strength of corporate governance structure and the extent of financial instrument disclosure (both overall and mandatory, but not voluntary).

Further, Linden and Matolcsy (2004) argue that good corporate governance leads to better accounting and market performance. They find that larger firms have higher corporate governance score ratings. There are some differences in liquidity ratio, leverage, interest coverage, dividend payout, dividend yield, P/E ratio and market related risk, but the differences are more closely associated with size than varying corporate governance systems. This result indicates the association between corporate governance and financial ratio performance of the firms.

Da Silva Rosa *et al.* (2008) investigate the extent to which non-compliant companies have poorer governance than other companies. Their result reveals lower corporate governance scores of lower profitability companies. Their argument is that less profitable companies are more likely to engage in creative accounting and window dressing and to some extent break the rules. One possible way is by presenting financial ratio figures.

As the debate on these issues continues to receive attention, it is becoming increasingly difficult to ignore their importance. This indicates a need to better understand the various approaches to utilising corporate governance among researchers. However, the evidence for this relationship is inconclusive, particularly for financial ratio disclosures practices. Thus, this thesis examines the

emerging roles of corporate governance in the context of financial ratio disclosures. It is argued that computed financial ratios are an effective tool to evaluate firms' operational results (Mitchell 2006) and deemed to be the mirror of firms' performance where higher financial ratios generally identify profitable firms (Horrigan 1965). Misuse of entities' financial resources could be highlighted by financial ratios. Firms with an effective governance structure are expected to disclose more financial ratios as publicly available information.

Al-Ajmi (2008) posits that financial ratios provide useful quantitative financial information to both investors and analysts who use them to evaluate the operation of a firm and to analyse its position within an industry or sector over time. The usefulness of these ratios largely depends on the integrity of financial statements, which in turn relies on firms' corporate governance practices. Governance practices play a role in reducing information asymmetry as well as influence both a firm's creditworthiness and value.

This doctorate specifically investigates the strength of corporate governance structure on the financial ratio disclosures practices of Australian firms. The requirement of ASX listed firms to disclose the extent to which they adhere to the best practice corporate governance principles and recommendations facilitates a comparison between a firm's corporate governance characteristics and financial ratio disclosures. Consistent with this rationale, it is expected that the extent of financial ratio information disclosed will be positively related to a stronger corporate governance structure of the firms. Therefore, the following hypothesis is proposed:

H₁: The extent of financial ratio disclosures is positively associated with a stronger corporate governance structure for Australian listed companies.

2.4.2 Capital Management and Extent of Disclosure

Capital management activity is another possible agency theory mechanism in aligning the agency conflicts. Consistent with agency theory tenets, capital management activities are thus potentially influence the level of financial ratio disclosures of the firms. In this study, core capital management initiatives include capital raising activities, takeover and merger activities, overseas cross-listings and the existence of international operations. It is argued that firms engaging in such capital management initiatives provide more disclosure, including financial ratios, in order to reduce agency conflicts.

There is extensive research in this area. For example, Frankel *et al.* (1995) conclude that financing firms have greater incentives to voluntarily disclose information than non-financing firms. In a different study, Meek and Gray (1989) find that Continental European companies disclose more voluntary information due to pressure associated to the need to raise capital in the international capital market context. Lang and Lundholm (1993) and Collett and Hrasky (2005) suggest that disclosure levels are higher for firms that are issuing securities. These findings indicate that firms provide more extensive disclosure if they undertaking capital raising activities.

Konings and Vandebussche (2004) investigate the behaviour of financial ratios in Bulgaria. They predict that companies are more likely to adjust their liquidity, solvency and turnover ratios towards

the industry mean in order to compete for further financing. They find that the adjustments of these ratios are slower (except for solvency ratio) as compared to the Western companies. This is due to the fact that these companies are less worried about their financial ratios not being in line with industry averages because they have growing debt levels despite having a negative profitability.

Further, Richardson and Welker (2001), Botosan and Plumlee (2002) and Botosan (1997) report an inverse association between disclosure levels and the cost of equity capital for firms. They also provide evidence on the type of disclosure that is associated with lowering the cost of capital. These results imply that management may selectively choose the information they communicate in order to raise capital at a lower cost. This is consistent with the Easley and O'hara (2004) conclusion that firms can adjust their cost of capital through selection of accounting and corporate disclosure policies.

With regards to debt capital, Sengupta (1998) suggests that debt holders are concerned with corporate disclosure policy in determining risk associated with debt instruments. The finding indicates that more extensive disclosure leads to lower interest rates because greater disclosure lowers perceived default risk, resulting in a lower cost of borrowing.

It appears that a manager's incentive to communicate information is to facilitate capital raisings at a lower capital cost. Hence, the intention to raise funds is one factor that explains managers' decisions to increase voluntary disclosure levels in their annual reports.

In relation to merger and takeover activities, Brennan (1999) reports greater disclosure of profit forecast during takeover bids for UK listed companies. While Wandler (2007) suggests that bidder firms with stronger financial characteristics provide more voluntarily earnings estimates to reduce information asymmetry. Such companies try to convince their shareholders that the target bidder will provide value to them. Further, Lang *et al.* (2006) argue that cross-listed firms are facing different reporting incentives. Doidge *et al.* (2004) suggest several reasons why firms cross listings include: lower cost of capital, access to foreign capital markets, increase ability to raise equity, increase their shareholders base, more liquid shares and add visibility. They find U. S. capital markets typically require more disclosure than the listing firms' home capital markets.

In a similar context, Ahmed *et al.* (2006) investigate the impact of international cross-listings by Australian firms both on Anglo-Saxon (US, UK, Canada and New Zealand) and Continental European (Germany) stock exchanges. They argue that information asymmetry among investors tends to be reduced following cross-listing and that firms experience an increase in trading volume and the liquidity of shares. Saudagaran and Biddle (1992) also conduct a study to examine the influence of disclosure level towards the decision of listings companies overseas. They posit that firms considering foreign stock exchange listing must deal with differences in accounting and auditing practices, financial reporting and registration requirements, and regulatory and legal restrictions between its domicile and the foreign country.

From an internationalisation perspective, Raffournier (1995) argues that the users of annual reports tend to compare disclosure practices between foreign and domestic firms. Consequently,

foreign companies are encouraged to follow the usual practices of countries in which they operate, which in turn potentially increases the extent of disclosure. They conclude that companies whose operations are internationally diversified tend to disclose more information than those operating domestically. It is also suggested that managers of companies operating in several geographical areas have to handle more information, due to the higher complexity of the firms operations (Cooke 1989). They are likely to increase their voluntary disclosure to highlight international operations (Cooke 1989; Raffournier 1995; Depoers 2000).

Thus, it can be summarised that cross-listing initiatives provide a credible commitment to increase disclosure because a firm is subject to greater regulatory and investor scrutiny, disclosure requirements, and potential legal exposure. This is consistent with Malone *et al.* (1993), argument that firms with overseas operation are subject to additional reporting requirements by the foreign governments.

Thus, it is hypothesised that firms participating in these capital management initiatives will exhibit more extensive financial ratio disclosures because of the additional capital market scrutiny and pressure. It is argued that these firms need to provide more information to keep the stakeholders more informed due to the existence of a larger group of investors (after raising new capital and through mergers and acquisitions), as well as a wider set of stakeholders (through cross listings and foreign operations). Additionally, disclosure of financial ratio information is often event related. For instance, financial ratios may be disclosed to highlight the change in financial, operational or investment structure of the firm immediately following the aforementioned capital management events and activities. Therefore, it is expected:

H₂: The extent of financial ratio disclosures is positively associated with higher capital management initiatives for Australian listed companies.

2.4.3 Ownership Concentration and Quantity of Disclosure

Ownership structure is another mechanism well established in the literature from the perspective of agency theory that ameliorates the interests of shareholders and managers (Eng and Mak 2003; Haniffa and Cooke 2002; Chau and Gray 2002; Hossain *et al.* 1994). This can be viewed from several perspectives, but a focal point of this doctorate is on ownership concentration.

Agency costs of equity increase with increases in shareholders dispersion (Jensen and Meckling 1976; Watts and Zimmerman 1978). Mitchell (2006) argues that managers' incentives to provide voluntary disclosures increase as agency costs of equity increase. It is suggested that agency problems may be reduced in companies with less concentrated ownership structures (Mohd Ghazali and Weetman 2006) as there are less conflicting parties.

Consequently, it is argued that firms with a more concentrated ownership structure may disclose less information of a voluntary nature. In Australia, McKinnon and Dalimunthe (1993) note that companies with a dispersed ownership structure disclose more voluntary information. In addition, Hossain *et al.* (1994) report a negative association between ownership structure concentration and the level of voluntary disclosure by Malaysian listed firms.

In France, Lakhal (2005) finds that share ownership concentration is statistically and negatively associated with voluntary earning disclosures. Oliveira *et al.* (2006) also document that firms with a

lower shareholder concentration voluntarily disclose more information about intangibles in Portugal. Malone *et al.* (1993) argue that relatively dispersed shareholder ownership results in increased scrutiny of managerial decision making processes, eventually leading to enhanced disclosures.

Eng and Mak (2003) examine whether there is a relationship between corporate governance and voluntary disclosure in Singapore. In their study, corporate governance is proxied by board composition and ownership structure. A negative association result indicates that lower managerial ownership increase voluntary disclosure. In addition, Chau and Gray (2002) find a positive association between diffused ownership and the extent of voluntary disclosure. Their result reveals that ownership structure is highly significant in both countries (Hong Kong and Singapore).

The significant role of ownership concentration in influencing financial disclosure practices is clearly evident in previous studies worldwide. It is expected that ownership concentration may influence the voluntary disclosure of financial ratio. This hypothesis is formally stated as:

H₃: The extent of financial ratio disclosures is negatively associated with higher ownership concentration for Australian listed companies.

2.4.4 Firm Size and Quantity of Disclosure

Firm size is another factor that may potentially influence financial ratio disclosures practices from the agency theory perspective. A large and growing body of literature has investigated the impact of firm size on the disclosure practices of firms (Brammer and Pavelin

2006; Hossain *et al.* 1994; Wallace *et al.* 1994; Chow and Wong-Boren 1987; Buzby 1975; Singhvi and Desai 1971; Barako *et al.* 2006; Cinca *et al.* 2005; Guthrie *et al.* 2006; Linsley and Shrivs 2006). Most of these studies find that firm size does affect the level of financial reporting of companies. Therefore, it is paramount to include this factor in determining the extent of financial ratio disclosures.

Chow and Wong-Boren (1987) argue that larger firms appear to have higher agency costs. Thus, by voluntarily disclosing additional information, these firms may mitigate agency conflicts and thereby reduce agency costs. Using agency theory, Watson *et al.* (2002) investigates the voluntary disclosure of accounting ratios in UK. Their result suggests that large companies are more likely to disclose ratios than small companies. Applying the same theory, Barako *et al.* (2006) study the factors influencing voluntary corporate disclosure by Kenyan companies and finds that size is one of the factors that encourage firm to disclose more information. In another voluntary environmental disclosure study by large UK companies, Brammer and Pavelin (2006) note that the larger the firm, the more likely they will make voluntary disclosures of environmental issues.

Cinca *et al.* (2005) investigate the country and size effects in financial ratios from a European perspective. Using 16 financial ratios, they suggest significant differences between sizes (small, medium and large firms) mostly in all ratios, except for profitability ratio.

Similarly, Van Staden and Hooks (2007) provide a comparison of corporate environmental reporting and responsiveness of New Zealand companies. Using a sample of 32 companies, they

measure the extent and quality of corporate environmental disclosure. They test the effect of size and industry on the level of environmental disclosure. However, they find these variables are not statistically significant predictors. Further, Guthrie *et al.* (2006) examine the voluntary reporting of intellectual capital in Hong Kong and Australia. The 20 largest companies listed in Australia for 1998 and 100 Hong Kong companies for 2002 are analysed. The result suggests that there is significant difference between small and large companies in reporting their intellectual capital.

Linsley and Shrivies (2006) investigate risk disclosures in the annual reports of UK companies. They conclude that both measures of size, natural log of market value and natural log of turnover are highly positively correlated with number of total risk disclosures, as well as number of financial risk disclosures and number of non-financial risk disclosures.

As an overview comment, it is suggested that reporting detailed information is relatively less costly for larger firms. On the other hand, smaller firms may be reluctant to make a fuller disclosure of their activities which might place them at a competitive disadvantage (Singhvi and Desai 1971; Buzby 1975; Lang and Lundholm 1993; Raffournier 1995). It is also argued that larger firms are more sensitive to political costs, thus will increase their disclosure to avoid public criticism or government intervention (Watts and Zimmerman 1978). According to Botosan (1997) and Depoers (2000), larger companies are more likely to operate in different markets or sectors. In order to get financing in different countries, they have incentives to provide more information to stakeholders (Depoers 2000; Lang and Lundholm 1993). Further evidence on the impact of firm size and voluntary disclosure policies can be found in McNally *et al.* (1982), Oliveira *et al.*

(2006), Eng and Mak (2003), Chau and Gray (2002) and Patelli & Prencipe (2007).

Based on the above studies carried out worldwide, it can be concluded that firm size does matter to the voluntary financial reporting practices of companies. It is posited in this doctorate that a similar pattern will also be applicable for the specific voluntary reporting of financial ratios practices. Thus, the impact of firm size is expected to be positively associated with the extent of financial ratio disclosures. The hypothesis designed to test this assertion is formally stated as:

H₄: The extent of financial ratio disclosures is positively associated with firm size for Australian listed companies.

2.4.5 Control Variables

This section provides a review of past literature on control variables employed in this thesis. Control variables included are based on their relevancy to this study as suggested from previous researchers.

2.4.5.1 Leverage

Agency theory argues that the presence of other stakeholders, such as bondholders ameliorate the agency conflict. Their presence leads to divergent interest between contracting parties. It is suggested that debt covenants and voluntary management disclosure practices may reduce conflicts.

Barako (2004) finds that highly leveraged companies tend to disclose more information. This is likely to be driven by the firm's capital provider which may require a minimum level of disclosure in

order to meet debt covenant requirements. In contrast, Eng and Mak (2003) finding suggests that companies with lower leverage have higher voluntary disclosures. However, some studies (Hossain *et al.* 1994; McKinnon and Dalimunthe 1993) report insignificant relationship between leverage and the extent of firm disclosure. Chow and Wong-Boren (1987) assert that leverage offers no explanation for voluntary disclosure. In a recent study, Taylor *et al.* (2008) posit leverage is an important determinant of financial instruments disclosure policy. They argue that firms engaging with debt capital transactions are subject to supervisory action and must comply with debt covenants. Ultimately, these firms will be more motivated to disclose financial instrument information.

Specifically related to the financial ratio disclosures practices, Watson *et al.* (2002) find that companies with higher leverage are more likely to disclose financial ratios. Using agency theory, they argue when firms engage in borrowing, agency costs are likely to increase because of the divergent interest between creditors and management. Consequently, debt covenants are executed to monitor managerial behaviour. In order to reduce the monitoring cost, managers may communicate the relevant information voluntarily in their financial statements. In addition, Mitchell (2006) argues the reporting of various financial ratios provides a signal that the firm is not breaching debt covenants and is well positioned financially. Enhanced disclosure also leads to a reduction in interest costs and provides better predictions about future risk and return prospects. Thus, leverage is included in the statistical model to provide further insights of financial ratio disclosures.

2.4.5.2 Non-Audit Fees (NAF)

The Non-audit fees (NAF) control variable represents the independence of external auditor in relation to audit-related and non-audit-related services provided to their clients. This construct is operationalised through the proportion of total audit fees and non-audit fees.

There is ongoing debate about the appropriateness of providing non-audit services by accounting firms. Larcker and Richardson (2004) examine the relationship between the fees paid to audit firms for audit and non-audit services and the behaviour of accounting accruals and found evidence of a negative relationship. Critics contend that the substantial fees paid to auditors, especially fees related to non-audit services, increase the financial reliance of the auditor on the client (Becker *et al.* 1998). As a result, auditor's independence may be compromised because they become reluctant to highlight problems relating to the preparation of financial statements. Similarly, Frankel *et al.* (2002) also find evidence that the provision of non-audit services reduces auditor independence and lowers the quality of financial information.

2.4.5.3 Profitability

Prior empirical studies have shown that profitable firms are more likely to disclose more information (Wallace *et al.* 1994). It is argued that profitability influences firms to disclose more information as compared to their counterparts in order to enhance their reputation. In addition, Singhvi and Desai (1971) suggest that profitable firms provide more details to explain their position as well as defending (their often higher) compensation packages. In contrast, non-profitable firms disclose less information to possibly

hide their poor performance situation and to conceal the reasons for losses or declining profits (Singhvi and Desai 1971).

Oliveira *et al.* (2006) model voluntary disclosure and note a positive relation between disclosure and firm performance in the face of adverse selection. Agency theory posits that disclosure works as a mechanism to control a manager's performance. Those managers are then stimulated to disclose information voluntarily to maintain their positions and compensation arrangements. Profit making companies are expected to disclose good news to maintain positive impact of their shares as suggested by political cost theory (Oliveira *et al.* 2006).

2.4.5.4 Industry

The industry to which the firm belongs is also expected to influence financial ratio disclosures practices. This assertion is supported by previous studies showing that industry does impact on the disclosure policy of companies. For example, Brammer and Pavelin (2006) find that the association between extent and quality of environmental disclosures and industry sectors are strong. Yongvanich and Guthrie (2005) examine the extent of disclosure of intellectual capital and non-economic performance in the annual reports of Australian firms. They argue that the mining industry is more likely to provide environmental disclosure due to greater public scrutiny. In a different study, Beasley *et al.* (2000) investigate the role of industry traits in influencing fraudulent financial reporting. They find that different industries (technology, health care and financial services) use different fraud techniques as part of their financial reporting practices. Thus, they suggest industry variations need to be considered when evaluating the financial reporting policies.

Watts and Zimmerman (1978) argues industry type may affect the political vulnerability of a firm. However, they believe companies belonging to the same industry category have equivalent political costs. They also suggest that proprietary costs also vary according to industry. Differences could be associated with industry's characteristics, type of private information and threats to enter certain industries. These factors provide incentives for 'similar' companies to disclose more information than firms in another industry.

In investigating selective financial reporting in Australia, Mitchell (2006) segregate industry group into mining, manufacturing, household; and investment and miscellaneous services. He notes that firms belonging to the mining industry have moderately significantly fewer ratios than non-mining firms. Watson *et al.* (2002) also identify industry as an important predictor of financial ratio disclosures in the UK. They suggest companies in industries which are highly regulated will be motivated to disclose more information in order to reduce agency cost, specifically legislation compliance cost. They group these sample companies into 10 industry categories: mineral extraction; utilities; manufacturer; engineering; consumer goods; retail; leisure; media; support services and other services. Their evidence shows that the media and utility industry provide the lowest incidence of financial ratios in annual reports.

2.4.5.5 Auditor

Jensen and Meckling (1976) and Fama and Jensen (1983) posit the role of the external auditor in reducing agency conflicts. The presence of auditors, as external parties may limit the opportunistic behaviour of management. It is suggested that

auditing is a mechanism for reducing agency costs (Jensen and Meckling 1976; Watts and Zimmerman 1978), mitigating information gap, and increasing the credibility of disclosures (Oliveira *et al.* 2006).

Raffournier (1995) states that auditors play a role in defining the disclosure policy of their clients. Large and well known auditing firms arguably encourage companies to disclose more information (Singhvi and Desai 1971) for several reasons: to maintain their reputation, expand their expertise and ensure they retain their clients. Forker (1992) hypothesises firms audited by the (then) big six audit firms provide higher optimal level of disclosures of share options compared to others. It enforces auditors to verify compliance with this disclosure requirement since it is required. Further, Al Farooque *et al.* (2008) evidence suggests that having an international Big 4 audit firm has a strongly significant effect on performance. While Beasley *et al.* (2000) argue the move of the (then) Big 5 audit firms towards industry-focused is consistent with the need to detect the fraud techniques most common in different industry setting.

Based on the previous literature (McNally *et al.* 1982; Singhvi and Desai 1971; Al Farooque *et al.* 2008; Beasley *et al.* 2000; Forker 1992), it is thought that the Big 4 audit firms are more likely to influence the level of disclosure of their clients as compared to smaller audit firms. Courtis (1996) suggestion is to include the function of auditors to monitor and advise their clients with regards financial ratios application. Therefore, type of auditor is the final control variable utilised in this thesis.

2.5 Summary

This chapter provides an overview of agency theory that underpins the theoretical foundation for financial ratio reporting practices of Australian companies. Extant literature has demonstrated that there is an association between corporate governance and firm specific characteristics with financial disclosures. Four hypotheses to be tested are developed which relate the strength of corporate governance, capital management initiatives, ownership concentration and firm size to the *extent* of financial ratio disclosures. In addition, this study also controls for the effect of different level of leverage, profitability, auditor-related issues and industry categories. The next chapter extends this discussion by examining the *quality* of such disclosures within annual reports.

CHAPTER 3: LITERATURE REVIEW – QUALITY OF DISCLOSURE

3.1 Introduction

This chapter provides a discussion of the literature covering *quality* of disclosure. The quality of disclosure (as a dependent variable) in this study utilises the conceptual framework issued by the International Accounting Standards Board (IASB), as well as the equivalent framework proposed by the Australian Accounting Standards Board (AASB). Firstly, a review of qualitative characteristics of information embedded in the conceptual framework is presented. The role and ability of qualitative characteristics to measure quality of disclosure is then discussed, followed by a review of past studies on disclosure quality. Hypotheses are then devised to test the association between quality of financial ratio disclosures (QFRD) and firm specific variables.

It is readily acknowledged that there has been less work on the quality of disclosure. Therefore, this thesis offers this preliminary and initial analysis of qualitative characteristics. Further research is encouraged to broaden and deepen the analysis.

3.2 Conceptual Framework Insights

This section reviews the IASB and AASB conceptual frameworks with particular emphasis on the qualitative characteristics within the framework. These frameworks are used as the basis to examine the qualitative characteristics on financial ratio information in this study. These qualitative characteristics are later used as proxies to measure quality. Generally, the qualitative characteristics issued by the IASB and AASB are equivalent⁶. The

⁶ Both IASB and AASB suggest similar qualitative characteristics, but explain differently some of the terms.

reviews also include the latest Exposure Draft (ED) issued by the joint project of IASB and Financial Accounting Standards Board (FASB).

The *Framework for the Preparation and Presentation of Financial Statements* was approved by the International Accounting Standards Committee (IASC) board in April 1989 and then published in July 1989. This framework describes the basic concepts by which financial statements are prepared. Specifically, the framework defines the objective of financial statements and identifies the qualitative characteristics that make information in financial statements useful. In addition, the framework also defines the basic elements of financial statements and the concepts for recognising and measuring them in financial statements.

The stated objective of financial statements is "...to provide information about the financial position, performance and changes in financial position of an enterprise that is useful to a wide range of users in making economic decisions" (IASB 1989, paragraph 12-14). This is arguably true for all listed companies in that they have a variety of stakeholders such as investors, creditors, employees and other interested parties. Undeniably, it is not an easy task for a company to satisfy all the information needs of all their stakeholders.

In seeking to ensure that users of the financial statements are provided with the best information about a company's performance, IASB outlines four principal qualitative characteristics that should come together with financial information. These four qualitative characteristics are: understandability, relevance, reliability and comparability (see Table 3.1), which later are incorporated as the 'quality' dependent variable.

According to the IASB, to highlight the *understandability* concept, the information should be presented in a way that is readily understandable by users and yet assume they have a reasonable knowledge of business and economics activities and accounting. By providing understandable information, users are aided with necessary information in making informed decision, as they can comprehend the meaning of such information. However, the users of financial information come from all backgrounds of life that may be not related with business. Thus, it could be asserted that more emphasis should be given in helping these non-sophisticated groups of users to understand the financial information in the annual reports. An example could be greater quality and extent of disclosures of financial ratios in assisting non-sophisticated users.

IASB posits that information in financial statements is *relevant*⁷ when it influences the economic decisions of users and suggests it is helping users to evaluate the past, present, or future events relating to an enterprise; as well as confirming or correcting past evaluations they have made. Relevant information is useful to evaluate company's past and present performance, for example to confirms targets set by the management regarding profitability levels. In addition, relevant information also can be used to predict company's future performance such as expected dividend payment.

In relation to *reliability*, information in financial statements is reliable if it is free from material error and bias and can be depended upon by users to represent events and transactions faithfully (IASB, 1989). Reliability can be enhanced if the financial

⁷ Again, the question of relevant to whom is raised because any information provided in the annual reports might be relevant to certain users and might not be relevant for the others.

statement information is evaluated and verified by an independent party to provide certain level of assurance to the users⁸. Reliable information is important for users to ensure they make informed decisions about the company they are interested in. If the information is not reliable, there is potential for a misunderstanding leading to inaccurate decisions.

The final qualitative characteristic of IASB's Framework is *comparability*, which advocates the ability of users to compare over time, within and between different entities. Comparison is important for users in making evaluation and exercising judgement before making investment decisions. However, the unavailability of information, especially between companies, sometimes limits comparability. Hence, it is crucial for a company to provide comparable of information to their users.

In Australia, the *Framework for the Preparation and Presentation of Financial Statements* is replacing the parts of the existing conceptual framework known as *SAC3 Qualitative Characteristics of Financial Information*. This is in line with the AASB policy to adopt the standards of the IASB for reporting periods beginning on or after 1 January 2005. This Framework is equivalent to the *Framework for the Preparation and Presentation of Financial Statements* issued by the IASB (see Table 3.1).

Further, in July 2006, the IASB and FASB jointly published a Discussion Paper, *Preliminary Views Conceptual Framework for*

⁸ However, there is a possible conflict when users try to balance between relevance and reliability criteria. It is a challenging task for the users to decide to what extent relevant and reliable information is important for them. For example fair value accounting might be relevant because companies using market/recent price in measuring their assets and liabilities, but on the other hand, it might be not reliable because of the fluctuations in the price. Joyce *et al.* (1982) argue that the issue of characteristics overlapping likely reduces their parsimony.

Financial Reporting: The Objective of Financial Reporting and Qualitative Characteristics of Decision-Useful Financial Reporting Information. The aim of this venture is to converge their previous frameworks, filling gaps to achieve completeness and removing contradictions to improve consistency (Whittington 2008a). As a result, the Exposure Draft⁹ (ED) was released for public comments on 29 May 2008. As shown in Table 3.1, the ED removes the 'reliability' characteristic from IASB framework and replace with the term 'faithful representation'. As suggested by Whittington (2008b), reliability is concerned with monitoring the principal's action, while faithful representation focuses on the economic event. Moreover, the ED proposes replacing the 'comparability' and 'understandability' characteristics with an overarching 'enhancing' criteria that includes 'comparability', 'verifiability', 'timeliness' and 'understandability'. However, as this thesis utilises 2007 annual reports, these proposed latter changes as documented in Table 3.1 are not included in the creation of the QFRD index in this thesis.

⁹ The new structure of qualitative characteristics outlined in the 2008 ED is still subject to debate as of the submission date of this thesis (March 2010). Thus, these changes are deemed not applicable for this thesis.

Table 3.1: Review of Qualitative Characteristics Embedded in IASB and AASB Conceptual Frameworks and Exposure Draft of IASB and FASB Venture

IASB Conceptual Framework Qualitative Characteristics	AASB Conceptual Framework Qualitative Characteristics	IASB & FASB Joint Venture Exposure Draft on Qualitative Characteristics
<p>1. Relevance Predictive Confirming Timeliness Materiality</p>	<p>1. Relevance Predictive Confirming</p>	<p>A. Fundamental 1. Relevance Predictive Confirmatory Both</p>
<p>2. Reliability Free from material error Free from bias Estimates Uncertainties</p>	<p>2. Reliability Free from material error Free from bias Represent faithfully</p>	<p>2. Faithful representation Complete Neutral Free from material error</p>
<p>3. Comparability Over time Different enterprise Accounting policies</p>	<p>3. Comparability Over time Different enterprise Accounting policies changes</p>	<p>B. Enhancing 1. Comparability Similarities Differences Consistency (period/ entity)</p>
<p>4. Understandability Readily understandable Reasonable knowledge</p>	<p>4. Understandability Readily understandable Reasonable knowledge</p>	<p>2. Verifiability Represent without material error Recognition/ measurement without material error 3. Timeliness 4. Understandability Classify Characterise Clear Concise</p>

3.3 Conceptual Frameworks and Disclosure Quality

A conceptual framework is particularly useful in the development of consistent and logical standards. It promotes harmonisation of regulations, accounting standards and procedures related to financial reporting. It assists accountants, auditors and users understanding in applying accounting standards (AASB 2004). Another potential benefit of the conceptual framework is that it can reduce any attempts to influence the standard setting process.

Botosan (2004) suggests that the conceptual framework of IASB could provide better guidance regarding generally accepted notions of information quality, in the absence of a universally accepted notion of disclosure quality. This well-known framework is believed to provide the foundation needed in assessing disclosure quality, where the qualitative characteristics of information that enhance the usefulness of information are outlined. Despite their importance and roles, Collins *et al.* (2002) evaluate the characteristics influencing perceptions of accounting pronouncement quality. Their study is based on five commentaries published in the June 1998 issue of *Accounting Horizons* to develop general characteristics that accounting pronouncements should reflect. One of the criteria constructed is adhering to a conceptual framework.

Shahwan (2008) analyses four main documents¹⁰ in explaining the qualitative characteristics of financial reporting. Shahwan (2008) also finds that the most commonly discussed qualitative characteristics of accounting information are relevance and reliability.

¹⁰ They are: *The Trueblood Report* (issued by AICPA), *The Corporate Report* (issued by ICAEW), *Making Corporate Reports Valuable* (issued by ICAS) and *Guidelines for Financial Reporting Standards* (by Solomons).

In Australia, Jones and Wolnizer (2003) discuss the impact of CLERP 9 on the (Australian) Conceptual Framework, where the introduction of CLERP 9 requires companies in Australia to adopt International Accounting Standards (IASs) by 1 January 2005. To support the movement, on 11 September 2009, the AASB published a *Framework for the Preparation and Presentation of Financial Statements*¹¹, applying to annual reporting periods beginning on or after 1 January 2009. To date, limited research has utilised the conceptual framework in measuring disclosure quality (Giordano-Spring and Chauvey 2007; Chatterjee *et al.* 2008; Mensah *et al.* 2006; Jonas and Blanchet 2000).

An example of recent research that has utilised qualitative characteristics derived from the Framework is that by Chatterjee *et al.* (2008). They analyse the management commentary section of 35 annual reports of New Zealand companies for a period from 2002-2006. Applying IASB's Discussion Paper on Management Commentary, they measure the quality of information using relevance, supportability¹², balance¹³ and comparability qualitative characteristics. Their results show that the qualitative characteristics of relevance and supportability have been addressed more thoroughly compared to balance and comparability. They also suggest the need for further attention and improvement in the provision of information that addresses these qualitative characteristics.

¹¹ This compilation is not a separate framework issued by AASB in 2004. It takes into account amendments of accounting standards up to and including 13 December 2007 and was prepared on 11 September 2009 by AASB staff.

¹² Information is supportable if it faithfully represents factually-based strategies, plans and risk analysis, for example (IASB 2005).

¹³ Balance is achieved by providing equal emphasis on good and bad news (IASB 2005).

Giordano-Spring and Chauvey (2007) assess the quality of corporate social reporting (CSR) of French listed companies on Societe des Bourses Francaises (SBF or Association of French Stock Exchanges) Stock Index. The quality of CSR is defined in relation to the compliance of accounting principles for reporting, specifically to the Conceptual Framework. They argue that accounting data has to satisfy some major features such relevance, reliability, comparability and understandability in order to be useful information. They find energy and heavy industry companies are positively and significantly associated with CSR quality.

Joyce *et al.* (1982) investigate the application of FASB's qualitative characteristics¹⁴ by policy makers in choosing accounting policies. They claim that the utilisation of these abstract concepts is challenging and suggest qualitative characteristics should be operational, comprehensive and parsimonious in setting accounting standards. Their result show that relevance, reliability and understandability are the most important three qualitative characteristics ranked out of eleven characteristics. The researchers conclude that the studied characteristics (nine out of eleven) are lacking in terms of operationalisation and parsimony capacity.

In response to the paucity of studies that review the provision of information that meet these key qualitative characteristics, this thesis investigates the quality of financial ratio disclosures in Australian listed companies' annual reports.

¹⁴ This thesis on the other hand, measures the relevance, reliability, comparability and understandability of financial ratios information consistent with the IASB and AASB qualitative characteristics.

3.4 Empirical Studies on Accounting 'Quality' and Hypotheses Development

Considerable effort has been directed towards various measures of quality of financial reporting (Forker 1992; Beekes and Brown 2006; Goodwin and Seow 2002; Byard and Weintrop 2006; Beretta and Bozzolan 2004; Naser and Nuseibeh 2003; Ascioğlu *et al.* 2005; Singhvi and Desai 1971; McDaniel *et al.* 2002; Sengupta 1998; Coy *et al.* 1993; Jonas and Blanchet 2000). It is suggested that there is no single approach of measuring quality. Any given perspective of quality is believed relevant in answering a specific research question outlined by the previous researchers. However, the concept of 'quality' has been defined in many different ways.

This thesis defines quality of information as any information provided to stakeholders which satisfies the qualitative characteristics embedded in the IASB and AASB conceptual frameworks. Specifically, this study advocates that if financial ratio information has been provided to stakeholders that has met the qualitative characteristics of *relevance, reliability, comparability* and *understandability*, it is assumed that such information is 'quality' in nature. The degree to which information has met each of the four qualitative characteristics will in turn determine the extent to which that information has been provided in a quality manner.

Similar to Section 2.4 which reviews previous studies that examine the association between the independent variables and the *extent* of financial ratio disclosure, this section analyses the association between independent variables and the *quality* of financial ratios disclosure.

3.4.1 Corporate Governance and Quality of Disclosure

Consistent with the argument that corporate governance impacts the quantity of reporting (Taylor *et al.* 2008), it is also suggested it may influence the level of reporting quality of a firm (Goodwin and Seow 2002). This is in line with regulatory bodies such as stock exchanges and ASIC in implementing new rules designed to improve the quality of corporate governance.

Forker (1992) investigates the relationship between corporate governance and disclosure quality and proposes a model of optimal disclosure decisions. It is suggested that governance is essential as a control mechanism in monitoring managerial disclosure incentives, which ultimately would improve the disclosure quality. Imhoff (2003) reviews the historical development of accounting, auditing and corporate governance. The combination of these three areas is expected to enhance the transparency of financial reporting process. He argues that it is important to provide users with relevant, reliable and timely information. More recently, Beekes and Brown (2006) examine whether better-governed Australian firms make more informative disclosures. This is based on argument that these firms make more timely and balanced disclosure than their counterparts. From their findings, they conclude that better-governed firms makes more price-sensitive disclosure, have larger analyst following, and have less biased and more accurate analysts' consensus forecasts.

In evaluating financial reporting quality, McDaniel *et al.* (2002) determine the effects of financial expertise or financial literacy of audit committee members on disclosure quality. The Statement of Financial Accounting Concepts (SFAC) No. 2's qualitative characteristics (relevance, reliability and comparability) are utilised

in measuring financial reporting quality. They suggest the inclusion of financial experts on audit committees to enhance overall reporting quality.

Goodwin and Seow (2002) study the influence of corporate governance and auditor related characteristics on the quality of financial reporting and auditing perceived by auditors and directors in Singapore. Auditors placed more weight on the internal audit function, while directors were more confident with board enforcement of the corporate code of conduct. They find that an audit committee significantly impacts the audit effectiveness, errors in financial statements and detection of management fraud. In addition, a strong internal audit function and strong enforcement of code of conduct also affects the internal controls of the firm. Their results imply that corporate governance mechanisms impact on disclosure quality.

The effect of good governance practices on the quality of financial reporting has also received attention from other researchers (Beasley *et al.* 2000; Beasley 1996). Beasley (1996) finds that no-fraud firms have boards that have a significantly higher percentage of outside members than fraud¹⁵ firms. Consistent with this finding, industry factor also evidenced have important impact. It is suggested that technology, health care and financial-services industries have greater differences of corporate governance mechanisms between fraud and non-fraud firms (Beasley *et al.* 2000). These studies demonstrate that the inclusion of outside members on the board reduces the occurrence of financial statement fraud, and therefore assists in the provision of information that faithfully represents the value of financial

¹⁵ Represent intentional misstatements or omissions of amounts or disclosures in financial statements.

statement elements. More recent studies also incorporate corporate governance and financial reporting (Gul and Leung 2004; Haniffa and Hudaib 2006; Ho *et al.* 2008). Thus, there is evidence that corporate governance is related to and mitigates agency conflicts.

Byard and Weintrop (2006) examine the relationship between corporate governance and the quality of financial analysts' information. They conclude that analysts' forecast accuracy is positively associated with the independence of a board. Gul and Leung (2004) argue that board structure may influence the quality of financial reporting because the board of directors is involved in corporate disclosure policies decision making. Further, Habib and Azim (2008) investigate the relationship between corporate governance and value-relevance of accounting information in Australia. Their result reveals that good corporate governance mechanisms increase the provision of value relevance of accounting information. The adoption of good corporate governance practices appears to enhance the provision of quality accounting information. These results support the notion that governance plays a key role in enhancing quality financial reporting.

Based on extant literature that links corporate governance and financial reporting practices of the firm, it is expected that the quality of financial ratio disclosures will be positively related to stronger corporate governance structure. Therefore, the following hypothesis is proposed:

H₅: The quality of financial ratio disclosures is positively associated with a stronger corporate governance structure for Australian listed companies.

3.4.2 Capital Management and Quality of Disclosure

According to agency theory tenets, capital management initiatives are also hypothesised to potentially enhance the quality of reporting practices of the firms. It is argued that firms engaging with capital raisings, takeovers and mergers, as well as involvement with international operations would provide better quality information. This is because these activities possibly increase the agency conflicts in the presence of substantial contracted parties. To reduce potential conflicts, managers may choose to communicate higher quality information.

In relation to capital management initiatives, one of the reasons why companies are involved in these activities is to seek new sources of finance. Disclosing better quality information is likely to reduce agency costs, and thereby lead to a reduction in the cost of capital. This is consistent with Lambert's *et al.* (2007) argument that accounting information impacts a firm's cost of capital. They find a direct relationship between higher quality accounting information and cash flows, as well as an indirect association with firms' expected value.

In addition, Yamori and Baba (2001) conducted a survey to gain insights on the benefits of firms overseas listing activity perceived by Japanese managers. Survey respondents perceive that overseas listing increases company's prestige and visibility in the host country, increases the number of foreign shareholders and generates greater news coverage. Based on these criteria, it is argued that firms that have an overseas listing should provide higher quality of reporting to satisfy higher expectations from larger groups of stakeholders.

Daske and Gebhardt (2006) also link higher quality of reporting standards with a firm's cost of capital. They suggest the regulation reforms aim to seek higher quality of financial reports; and ultimately higher liquidity of financial markets and lower cost of capital for adopting firms. However, Ball *et al.* (2003) find that in the case of four East Asian countries, such activities may not lead to higher quality reporting due to weaker enforcement mechanisms and strongly adverse reporting incentives. Clarkson *et al.* (1999) investigate the determinants of 'Management's Discussion and Analysis' (MD&A) disclosure quality and finds that such disclosure is significantly and positively related to firm's level of financing. Improved corporate disclosure practice can help decrease transaction costs and liquidity risk between the firms and investors; and thus reduce the cost of equity capital and enhance firm performance.

Thus, it is hypothesised that firms involved in capital management initiatives will be willing to communicate higher quality information in order to reduce potential agency costs. The following hypothesis is proposed:

H₆: The quality of financial ratio disclosures is positively associated with higher capital management initiatives for Australian listed companies.

3.4.3 Ownership Concentration and Quality of Disclosure

In Chapter Two, the expected relationship between ownership concentration and the *extent* of financial ratio disclosures was discussed (see Section 2.4.3). The same theoretical basis is used as the background to test its association with the *quality* of financial ratio disclosures. It is posited that the more concentrated

the ownership structure, the lower will be the quality of disclosed financial ratio information. This argument is based on the suggestion that the level of ownership concentration is able to mitigate agency problems. As suggested by Jensen and Meckling (1976), one component of agency costs is the monitoring expenditures by the principal to monitor the agents including budget restrictions or operating rules. The monitoring task not only aims to enhance the quantity of firm disclosure practices, but also potentially increases the quality of reporting. As posited by Byun *et al.* (2008), better quality financial information potentially reduces information asymmetry and self-controls concentrated owners by efficiently managing investment and enhancing the economic performance of the firms. Thus, the following hypothesis is proposed:

H₇: The quality of financial ratio disclosures is negatively associated with higher ownership concentration for Australian listed companies.

3.4.4 Firm Size and Quality of Disclosure

Firm size is also believed to influence the level of financial ratio disclosure quality. It is expected that larger firms potentially communicate better quality of financial data to their stakeholders. For example, Singhvi and Desai (1971) empirically study the quality of corporate financial disclosure. In order to evaluate the quality of information disclosed in annual reports, an index of disclosure with 34 items is used. They define quality as completeness, accuracy and reliability. Their result demonstrates that the corporations which disclose lower quality of information are likely to be smaller in size based on total assets and based on number of shareholders. In addition, Habib and Azim (2008) find that firm specific factors such as firm size also have impact on the

quality of accounting information. The following hypothesis is thus suggested:

H₈: The quality of financial ratio disclosures is positively associated with firm size for Australian listed companies.

3.5 Summary

This chapter provides insights based on the IASB and AASB conceptual frameworks that provide the basis for the qualitative characteristics of financial information. These authoritative documents motivate this thesis to apply their concepts in measuring the quality of financial ratio disclosures for Australian listed companies. The quality of financial ratio disclosures is hypothesised to be associated with the strength of corporate governance, capital management initiatives, ownership concentration and firm size. The next chapter outlines the research method utilised by this thesis to test these hypotheses.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

This chapter outlines the research methodology for this thesis. The definition of the dependent variables, Extent of Financial Ratio Disclosures (EFRD) and Quality of Financial Ratio Disclosures (QFRD), are discussed. The indices used to measure the dependent variables are then presented. This chapter also explains the measurement of predictor variables.

4.2 Definitions

This sub-section sets out the definitions of EFRD and QFRD. Broadly, a financial ratio can be defined as "...those involving financial statement accounts or totals which were expressed in monetary terms" (Williamson 1984, p. 297). Alternatively, Courtis (1996, p.148) states that a "...financial ratio represents a relationship between two variables as a single summary statistic". For the purpose of this thesis, a financial ratio is defined as "...a mathematical relation between two quantities" (Subramanyam and Wild 2009, p. 33).

4.2.1 Extent of Financial Ratio Disclosures (EFRD)

In this thesis, EFRD is defined as the extent of financial ratio voluntarily reported by firms in annual reports. Meek *et al.* (1995, p. 555) define voluntary financial reporting as "...disclosure in excess of requirements – represent free choices on the part of company managements to provide accounting and other information deemed relevant to the decision needs of users of their annual reports". This thesis applies Meek's *et al.* (1995) definition of voluntary financial reporting. Disclosure of earnings per share (EPS) is excluded from EFRD as its disclosure is solely mandated

under AASB 133 (AASB 2007). In aggregate, the EFRD comprises 43 individual financial ratio items.

4.2.2 Quality of Financial Ratio Disclosures (QFRD)

There are several studies that seek to measure the quality of reporting (Botosan 1997; Singhvi and Desai 1971; Marston and Shrivs 1991; Beattie *et al.* 2004; Hasseldine *et al.* 2005; Zeff 2007; Narayanan *et al.* 2000; Clarkson *et al.* 1999). Yet, these studies all measure quality of reporting in different ways. In this thesis, the core qualitative characteristics of financial information within the AASB's or IASB's Conceptual Framework are used to assess the quality of financial ratio information disclosed (QFRD) within annual reports. Specifically the key qualitative characteristics *relevance*, *reliability*, *comparability* and *understandability* are used to address the quality of financial ratio information disclosed. A matrix of qualitative characteristics consisting of twelve items is developed to assess the QFRD.

4.3 Development of Disclosure Indices

Healy and Palepu (2001) posit three methods normally applied by previous researchers in measuring the extent of voluntary reporting, including management forecasts, metrics based on rankings (Lang and Lundholm 1993) and self-constructed indices (Botosan 1997). This thesis uses the last approach in examining the EFRD and QFRD.

There are extensive studies that utilise indices to assess extent or quality of disclosure. For example, Taylor (2008) develops a 120 item Financial Instrument Disclosure Index (FIDI) for Australian listed firms. Barako (2004) utilises a voluntary disclosure index for Kenyan companies. In France, Depoers (2000) uses an index

comprising 65 discretionary disclosure items to measure a cost-benefit analysis of voluntary disclosure. Meek *et al.* (1995) create a voluntary disclosure checklist consist of 85 items in order to determine the factors influencing voluntary annual reports disclosures by the U.S, U.K and Continental European companies.

Further, Mohd Ghazali and Weetman (2006) study the voluntary disclosure of Malaysian companies following the 1997-1998 Asian economic crisis. They derive an index comprising 53 items in a voluntary disclosure checklist consistent with that used in previous studies (Chow and Wong-Boren 1987; Cooke 1989; Hossain *et al.* 1994; Haniffa and Cooke 2002). In addition, Giordano-Spring and Chauvey (2007) and Chatterjee *et al.* (2008) incorporate qualitative characteristics of accounting information in measuring the quality of reporting. These studies demonstrate the common use of an index to assess extent or quality of disclosure.

4.3.1 The Advantages of a Disclosure Index

Marston and Shrikes (1991) review past studies that use disclosure indices in accounting research. They define disclosure indices as "...extensive lists of selected items which may be disclosed in company report" (p. 195). They note that since the 1960s, the use of disclosure indices is a popular technique to assess disclosures. One of the possible reasons is the simplicity offered by the disclosure index technique. The disclosure index score is normally developed by aggregating a series of dichotomous variables, where a score of one is awarded if a particular item is disclosed or otherwise zero for each variable not disclosed. Consistent with past literature, this aggregated score is treated as a continuous metric variable.

This approach is straightforward and avoids ambiguity. In contrast, use of a weighted index¹⁶ assumes that information disclosed in the annual reports could be objectively weighted according to the perceived importance of information items to different groups of users or by researchers. According to Barako (2004), the unweighted index approach is used to avoid bias particularly where a disclosure index does not focus on a specific group of users.

In addition, researchers may use previous indices which are relevant to their studies, or on the other hand, develop a new disclosure index that is suitable to achieve their research objectives. According to Marston and Shrives (1991), if researchers choose to use existing indices, a direct comparison of the results could be performed potentially enhancing the reliability of the disclosure index. However, most researchers choose to adapt and modify an index in answering their research questions since there is no single index that could explain the disclosure literature internationally, both for compliance and voluntary disclosure.

4.3.2 The Limitations of a Disclosure Index

As discussed by Coy *et al.* (1993), an unweighted disclosure index could lead to the following problems: i) it fails to discriminate between poor and excellent disclosure; ii) it treats all individual disclosures as being equally important; and iii) it makes no allowance for a possible imbalance in reports. In contrast, the weighted disclosure index has clear problems with subjectivity in calculating the index score (Wiseman 1982). Ahmed and Courtis (1999) argue that the unweighted approach is superior and has

¹⁶ There were several studies that employed weighted disclosure indices (Barako 2004; Eng *et al.* 2001; Coy *et al.* 1993; Chow and Wong-Boren 1987; McNally *et al.* 1982; Buzby 1975; Singhvi and Desai 1971). This approach is suitable for items that are perceived to have varying degrees of importance for the user group (Marston and Shrives 1991) but subject to objectivity.

become part and parcel of disclosure studies in annual reports since it reduces subjectivity.

Another problem posited by Marston and Shrives (1991) is the applicability of certain items to a company's disclosure practices. Companies should not be penalised for the items that are not applicable to them. However, using a ratio of actual disclosure against a possible maximum number could overcome this problem (Buzby 1975). This approach produces a continuous variable for the disclosure index, which is adopted by this thesis.

In summary, disclosure index techniques have been widely used by researchers to assess the extent and quality of disclosure. Despite their limitations, this approach is believed suitable and appropriate for this doctorate, in investigating financial ratio disclosures utilising this method. This thesis develops two indices: a financial ratio disclosures index to measure the Extent of Financial Ratio Disclosures (EFRD) and a matrix of qualitative characteristics to measure the Quality of Financial Ratio Disclosures (QFRD).

4.3.3 Extent of Financial Ratio Disclosures (EFRD) Index

In order to measure the EFRD, a financial ratio disclosures index is developed. The items included in the index are based on well known and used financial ratios (Larson 1997; Wild *et al.* 2007; Stickney *et al.* 2004; Peirson and Ramsay 2000; Maxwell *et al.* 1998; Hoskin 1994; Horngren *et al.* 2006; Hoggett *et al.* 2006; Fridson and Alvarez 2002; Bergevin 2002; Beaver 1998). In addition, financial ratios commonly studied by previous researchers (Mitchell 2006; Watson *et al.* 2002; Curtis 1996; Gibson 1982) are also incorporated. Thus, a comprehensive disclosure index

comprising 43 items of financial ratios is created (Aripin *et al.* 2009).

Some past studies clearly mention the specific ratios used, such as Mitchell (2006), while others just discuss the ratios at a broader categorical level, for example Watson *et al.* (2002). Studies that focus specifically on disclosure of financial ratios include Morton and Harrison (2009); Mitchell (2006); Watson *et al.* (2002); Courtis (1996); Williamson (1984) and Gibson (1982); prediction of firms' bankruptcy (Beaver 1966; Altman 1968); bond ratings (Horrigan 1965; Pinches *et al.* 1975); and methodological issues (Pinches *et al.* 1975).

In this doctorate, only general and universally-applicable ratios believed pertinent for all firms and industries are included in the index. Any specific ratios relating solely to certain industries are not incorporated. These procedures help to avoid non-applicability problems.

Table 4.1 presents the full 43-items index, categorised into five main categories: *Share Market Measures*, *Profitability*, *Capital Structure*, *Liquidity* and *Cash Flow ratios* (please refer Appendix B for complete formulas). *Share Market Measures* sub category consists of eleven (11) individual ratios, while *Profitability* category is made up of nine (9) separate ratios. The rest of the ratios are classified as *Capital Structure* (7 ratios), *Liquidity* (7 ratios) and *Cash Flow* (9 ratios). These five categories are consistent with the accounting text book authors' classification and also partially utilised by previous studies (Mitchell 2006; Watson *et al.* 2002).

Table 4.1: Extent of Financial Ratio Disclosures (EFRD) Index

Categories	Individual Ratios
1. Share Market Measures	<ol style="list-style-type: none"> 1. Book value per ordinary share 2. Dividend payout 3. Dividend yield 4. Earnings yield 5. Market capitalisation 6. Market-to-book value 7. Net assets backing per share 8. Net tangible assets backing per share 9. Price-to-book ratio 10. Price-to-earnings ratio 11. Total shareholders return
2. Profitability	<ol style="list-style-type: none"> 1. EBITDA revenue 2. Expense revenue 3. Gross profit margin 4. Net profit margin 5. Pre-tax profit margin 6. Return on assets 7. Return on equity 8. Return on sales 9. Sales turnover
3. Capital Structure	<ol style="list-style-type: none"> 1. Capitalisation ratio 2. Equity ratio 3. Gearing 4. Liabilities to assets ratio 5. Long term debt to equity ratio 6. Times interest earned 7. Total debt to equity
4. Liquidity	<ol style="list-style-type: none"> 1. Account receivable turnover 2. Collection period 3. Current ratio 4. Days to sell inventory 5. Inventory turnover 6. Payment period 7. Quick ratio
5. Cash Flow	<ol style="list-style-type: none"> 1. Cash flow adequacy 2. Cash flow ratio 3. Cash flow return on assets 4. Cash flow to revenue 5. Debt coverage 6. Dividend payment ratio 7. Operation index ratio 8. Reinvestment ratio 9. Repayment of long term borrowings ratio
$\text{EFRD} = \frac{\text{Total number of financial ratios disclosed}}{\text{Total possible financial ratios (43)}}$	

Legend: This table lists all 43 financial ratios that comprise the EFRD used to measure the extent of financial ratios in annual reports. The ratios are categorised into five groups.

4.3.4 Matrix of Qualitative Characteristics

An initial and preliminary matrix of qualitative characteristics¹⁷ is created to measure the QFRD. This matrix uses the qualitative characteristics of financial information within the IASB and AASB conceptual frameworks. The application of the conceptual framework elements in measuring the reporting quality is assumed appropriate in line with the authoritative position of those frameworks.

Beattie *et al.* (2004) discuss the profile and metrics for disclosure quality attributes relating to narratives in annual reports. They argue that one of the approaches normally used is use of a researcher-constructed disclosure index where the amount of disclosure is used as a proxy for disclosure quality (Botosan 1997; Singhvi and Desai 1971). Because of the difficulty of assessing disclosure quality directly, disclosure index studies assume that the amount of disclosure on specified topics proxies for the quality of disclosure, which ultimately reflects the quantity of disclosure items. For example Naser and Nuseibeh (2003) utilise the degree of compliance and the extent of corporate disclosure as a proxy of quality, where a high degree of compliance and more disclosure are viewed as better quality. Given the limitations of this approach, the call for new approaches in defining dimensions and measurements of disclosure quality is crucial.

Thus, twelve important qualitative items of information are used to construct the quality index. These items are derived from the four qualitative characteristics: *relevance, reliability, comparability* and *understandability* (AASB 2004; Giordano-Spring and Chauvey 2007; Mensah *et al.* 2006; Jonas and Blanchet 2000; IASB 1989;

¹⁷ It is acknowledged that this matrix has limitations due to the fact that there is no single completely defensible way to measure the 'quality' of reporting.

Chatterjee *et al.* 2008). To construct the QFRD, three items of qualitative information are derived for each of the four qualitative characteristics. They are:

- 1) Relevance- prediction, confirmation, timeliness;
- 2) Reliability- verifiability, faithful representation, expertise;
- 3) Comparability- temporal, target benchmark, industry consistency; and
- 4) Understandability- presentation, location, explanation (refer Table 4.2).

Table 4.2: Matrix of Qualitative Characteristics for QFRD Construction

Qualitative Characteristics			
Relevance	Reliability	Comparability	Understandability
<p>Prediction Ratios are used to predict the company's future prospects</p>	<p>Verifiability Completely independent audit conducted</p>	<p>Temporal Direct comparison of ratio between 2 consecutive years</p>	<p>Presentation Ratios are presented using graphs/ table/ diagram</p>
<p>Confirmation Ratios are used to confirm performance targets</p>	<p>Faithful Representation Auditor's report qualification</p>	<p>Target Benchmark Comparison of ratios within target benchmark</p>	<p>Location Ratios are located in Financial Highlights section/ any composition of Directors Report</p>
<p>Timeliness Number of days annual report is audited from year end</p>	<p>Expertise % financial expertise on audit committee</p>	<p>Industry Consistency Consistently exceeds industry ratio disclosure</p>	<p>Explanation Explanation/ elaboration/ discussion of ratios</p>

Legend: These twelve items of financial ratio information comprise the QFRD.

As suggested by the conceptual frameworks, **relevant** information helps users in making decisions through evaluation of past, present

and future prospects of the firm (IASB 1989; AASB 2004). Therefore, this matrix outlines *prediction* and *confirmation* elements relating to the financial ratio information in advancing the **relevance** concept. Firms that use financial ratios are assumed to reflect either their past or expected future performance, therefore this information potentially would enhance user's comprehension about a companies' position. Consequently, it provides relevant and quality information to assist users in making informed decisions. According to Healy and Palepu (2001), the credibility of voluntary disclosure could be enhanced through confirmation of previously reported information. *Timeliness* is another element utilised to represent the **relevance** qualitative characteristics. This thesis measures timeliness as the difference between the balance sheet date and opinion signature date¹⁸ in the auditors' report. Dyer IV and McHugh (1975, p. 208) suggest that "...an examination of the auditors' signature lags was undertaken in the belief that the date of the auditors' signature to the opinion statement signified the point at which the year-end audit period was most definitely complete". The *timeliness* element outlined in the matrix measures the availability of financial statement to the external stakeholders.

The second qualitative characteristic introduced by the QFRD matrix is **reliability**. It is assumed that reliable information in the annual report is grounded by the auditing function. According to the Auditing and Assurance Standards Board (AUASB) (2007, p. 6), "...the objective of an audit of a financial report is to enable the auditor to express an opinion as to whether the financial report is prepared, in all material respects, in accordance with an applicable financial reporting framework". Thus, *verifiability*, *faithful representation* and *financial expertise on audit committee* are

¹⁸ This measure includes preparer and auditor time. It is assumed that auditor time is relatively constant across firms.

incorporated. *Verifiability* reflects the independent of audit conducted while type of audit report issued by the auditor measures *faithful representation*. In relation to audit committee members' financial *expertise*, Defond *et al.* (2005) find a positive market reaction to the appointment of accounting financial experts assigned to the audit committee. It is thus argued that these elements reflect the quality of financial reporting.

Further, **comparability** is addressed through *temporal*, *target benchmark* and *industry consistency* elements. The *Temporal* element demonstrates the existence of comparable financial ratios between years. *Target benchmark* specifies any comparison of financial ratio provided towards any standard benchmarking such as S&P/ASX 100. *Industry consistency* compares the extent of financial ratio by a firm against financial ratio disclosures practices for their related industry. It is believed that comparable financial ratios provided by the firms potentially increase the quality of such information. It is argued that providing stand-alone financial ratio information limits comparable firm performance. As posited by Courtis (1996) a calculation of a series of ratio values over time enables better analysis of the existence, track and strength of financial trends.

Lastly, the matrix suggests *presentation*, *location* and *explanation* elements to reflect the qualitative characteristic of **understandability**. *Presentation* is advanced to ascertain whether the disclosure of financial ratios is aided by tools such as graphs, tables or diagrams that depict patterns. Previous studies find that graphs are user friendly and increase the speed of decision making. This is because the relationships are easier to conceptualise and retain. In addition, graphic presentation is visually appealing and an effective means of communicating financial information, as it

simplifies complex quantitative data (Beattie 1999; Penrose 2008; Beattie and Jones 1992, 1997; Frownfelter-Lohrke and Fulkerson 2001). Then, *location* is utilised to examine the venue of financial ratios communication within various sections in the annual reports. As suggested by Yuthas *et al.* (2002), President's Letter and the Management's Discussion and Analysis (MD&A) are among important sections in the annual report to supply financial information to investors and other interested parties. In Australia, these sections are equivalent to Directors' Report and CEO's Letter. Hyland (1998) similarly investigate the narrative communication in the CEO's Letter in the annual reports of Hong Kong listed companies. Finally, it is assumed that if financial ratio figures further *explain* using narration, it would enhance its quality by helping users understanding. Yuthas *et al.* (2002) posit that narrative textual materials are now recognised as important research elements.

In summary, EFRD is an aggregate measure of the extent of financial ratio disclosures in Australian listed companies' annual reports. EFRD represents the proportion of actual financial ratios reported to the possible maximum financial ratio disclosures. EFRD consists of 43 items developed to capture the 'quantity' of ratio information disclosed. In addition, QFRD is a comprehensive measure of the quality of financial ratio disclosures. In order to capture the concept of 'quality', this thesis applies the four qualitative characteristics embedded in IASB or AASB Conceptual Frameworks. Thus, an innovative matrix consisting of twelve items is created to measure the QFRD.

4.4 Calculation of the Dependent Variables

There are two dependent variables for this thesis, Extent of Financial Ratio Disclosures (EFRD) and Quality of Financial Ratio Disclosures (QFRD). This section explains the specific measurement parameters of EFRD and QFRD. Both of these dependent variables are continuous (ratio) in nature.

4.4.1 Measurement of EFRD

Each financial ratio in the EFRD index is scored as one (1) if disclosed in the annual report or otherwise zero (0). An unweighted index is used in this study (see Appendix B). The reason for this is that Marston and Shrides (1991) state that there is no significant difference in results between the users of weighted or unweighted indices. The EFRD (continuous) score is then computed by summing up all items disclosed divided by the maximum number of items that are deemed applicable¹⁹. The EFRD score can be mathematically represented as follows:

$$EFRD_j = \frac{\text{Total number of financial ratios disclosed}}{\text{Total possible financial ratios (43)}}$$

Where:

EFRD_j = Extent of Financial ratio disclosures for firm j

4.4.2 Measurement of QFRD

The Quality of Financial Ratio Disclosures (QFRD) is examined using a matrix of qualitative characteristics. Overall, from the twelve items constructed in the matrix, eight items are specifically related to financial ratio qualitative characteristics, while the remaining four items are related to broader qualitative characteristics of financial statement information in general. This approach is

¹⁹ For this thesis, a total possible 43 ratios are deemed applicable.

believed appropriate since general financial statement information is normally used as a basis for financial ratio calculation and related quality of communication. Table 4.3 depicts the coding index for each item in a matrix of qualitative characteristics.

Table 4.3: Measurement of QFRD

Qualitative characteristics	Sub elements	Criteria	Coding Index		
Relevance	Prediction	Whether ratios are used to predict the company's future prospects	0	=	No
			1	=	Yes
	Confirmation	Whether ratios are used to confirm company's performance targets	0	=	No
			1	=	Yes
	Timeliness	Number of days annual report is audited from year end	(101-number of days from fiscal year end until audited)/100		
Reliability	Verifiability	Whether auditor conducted independent audit	0	=	No
			1	=	Yes
	Faithful representation	Whether auditor's report provides an unqualified opinion	0	=	No
			1	=	Yes
	Expertise	Percentage of financial expertise on audit committee	% of financial expertise on audit committee		
Comparability	Temporal	Whether direct comparison of ratio between two or more consecutive years is provided	0	=	No
			1	=	Yes
	Target benchmark	Whether comparisons to target benchmark ratios are provided	0	=	No
			1	=	Yes
	Industry consistency	Whether firm consistently disclose financial ratio in comparison with its industry	1 - [(maximum industry disclosure - firm disclosure)/maximum industry disclosure]		
Understandability	Presentation	Whether ratios are presented using graphs/ tables/ diagrams	0	=	No
			1	=	Yes
	Location	Whether ratios are located in the Financial Highlights section/ any composition of Directors Report	0	=	No
			1	=	Yes
	Explanation	Whether further explanation/ elaboration/ discussion of context of ratio is provided	0	=	No
			1	=	Yes
QFRD = Total score for disclosure quality (sub elements) / Total possible qualitative characteristics (12)					

A QFRD (continuous) score is then be computed by summing all items disclosed divided by maximum score of quality (12). A QFRD score is calculated for each firm. The QFRD score is mathematically represented as follows:

$$QFRD_j = \frac{\text{Total score for disclosure quality}}{\text{Total possible qualitative characteristics (12)}}$$

Where:

$QFRD_j$ = Quality Financial Ratio Disclosures for firm j .

4.5 Measurement of Independent Variables

To investigate the *extent* and the *quality* of financial ratio disclosures in the annual report, the following independent variables are included: corporate governance, capital management, ownership concentration and firm size.

4.5.1 Corporate Governance (CG)

The strength of corporate governance structure is measured as a composite measure of thirteen key items substantially recommended by the ASX Corporate Governance Council (2003)²⁰. These thirteen items were developed by Taylor *et al.* (2008) with several more recent modifications made to suit this thesis. The unweighted composite measure is used in line with past literature (Taylor *et al.* 2008; ASX 2008). Thus, all elements are treated equally important. Table 4.4 presents the thirteen items to be used to measure the corporate governance variable.

²⁰ There is a set of revised Corporate Governance Principles and Recommendations (ASX Corporate Governance Council 2007) which was released in August 2007. However, this guideline takes effect from 1 January 2008, and thus is not applicable for this study which uses 2007 companies' annual reports.

Table 4.4: Corporate Governance Items

	Description of the Corporate Governance Items
CG1	Is chairman of the board an independent director? 1=Yes; 0=No
CG2	Are the roles of the chairman and chief executive officer performed by different persons? 1=Yes; 0=No
CG3	If percentage of independent directors on the BOD < median = 0; if percentage of independent director on the BOD \geq median = 1
CG4	Does the nomination committee have a policy for the appointment of directors? 1=Yes; 0=No
CG5	Has the board adopted a formal code of conduct that deals with personal behaviour of directors and key executives relating to insider trading, confidentiality, conflicts of interest and making use of corporate opportunities (property, information, position)? 1=Yes; 0=No
CG6	Does the company have a formal plan, policy or procedures in respect of equity (shares and options) based remuneration paid to directors and key executives? 1=Yes; 0=No
CG7	Does the company have a remuneration policy that outlines the link between remuneration paid to directors and key executives and corporate performance? 1=Yes; 0=No
CG8	Does the audit committee have at least one member that has financial expertise (i.e. is a qualified accountant or other financial professional with stated experience of financial and accounting matters)? 1=Yes; 0=No
CG9	Has the board adopted a formal integrated risk management policy that deals with risk oversight and management and internal control? 1=Yes; 0=No
CG10	Has the CEO/CFO stated that the company's risk management, internal compliance and control systems are operating effectively and efficiently? 1=Yes; 0=No
CG11	Does the company have an audit committee (AC) charter? 1=Yes; 0=No
CG12	Does the company have a formal written continuous disclosure policy? 1=Yes; 0=No
CG13	If percentage of independent directors on AC < median = 0; if percentage of independent director on AC \geq median = 1

Legend: Thirteen items of Corporate Governance (CG) structure

To provide a better measurement, CG3 is modified from Taylor *et al.* (2008), which used an arbitrary cut-off-point of 70% and ASX

Corporate Governance Council (2003), which recommended the 'majority' term. This thesis uses the median. As suggested by Cooper and Schindler (2008), the median is the most appropriate location centre for ordinal data and has resistance to extreme scores.

Next, the CG8, CG11 and CG13 items are related to audit committee formation. In relation to this matter, ASX Listing Rule 12.7 requires the top-300 listed entities to have an audit committee and it should consist of at least three non-executive directors, with a majority independent and with an independent chairperson who is not the chairperson of the full board. In addition, the top-500 listed entities are required to have an audit committee (but not required to comply with audit committee composition rules). However, listed entities outside the top-500 are not required to have an audit committee but are required to report their practices under Listing Rule 4.10. Since this thesis uses random sampling stratified only for industry categories, all these listing requirement options are possible and relevant.

The remaining corporate governance items are adopted from Taylor *et al.* (2008). Thus, for this particular thesis, CG is a composite measure of all the thirteen items listed on Table 4.4 calculated as:

$$CG_j = \frac{\text{Total score for corporate governance}}{\text{Total possible corporate governance (13)}}$$

Where:

CG_j = Corporate Governance score for firm j .

4.5.2 Capital Management (CM)

Capital management incorporates capital raising activities, takeover or merger activities, overseas listing and international operations. Thus, CM is an unweighted composite measure of these four items related to capital management activities of the company as utilised by Taylor *et al.* (2008).

Table 4.5: Capital Management Items

	Description of Capital Management Items
CM1	Has the company engaged in capital raisings such as a new share issue in the current year? (1=Yes; 0=No).
CM2	Has the company engaged in takeover or merger activity in the current year? (1=Yes; 0=No).
CM3	Is the company listed on an overseas stock exchange? (1=Yes; 0=No).
CM4	Does the company belong to a corporate group that has operations overseas? (1=Yes; 0=No).

Legend: Four items of Capital Management (CM) initiatives

4.5.3 Ownership Concentration (OC)

To create a proxy measure for Ownership Concentration (OC) score, total shareholding of the top 20 shareholders (Top20) is used. OC is treated as a continuous variable by dividing the number of shares owned by the top twenty shareholders by the total number of shares issued. Prior studies have adopted similar measures of ownership concentration. For example Setyadi (2009) and Chen (2001) use top one shareholder ownership; Depoers (2000) utilises top three while Cheung *et al.* (2008) and Haniffa and Hudaib (2006) measure top five shareholder ownership. Studies conducted in Malaysia by Hossain *et al.* (1994), Haniffa and Cooke (2002) and Mohd Ghazali and Weetman (2006) calculate shareholding of the top 10 shareholders. In Australia, McKinnon and Dalimunthe (1993); Birt *et al.* (2006); Mitchell (2006); Taylor *et al.* (2008) and Morton and Harrison (2009) analyse top 20

shareholder ownership. In line with studies carried out in Australia by previous researchers, the ownership concentration (OC) score is measured as a total shareholding of the top 20 shareholders.

4.5.4 Firm Size (FSIZE)

Firm size measurement has been extensively studied in the past research. It has been demonstrated that firm size is positively associated with disclosure levels (Barako 2004; Watson *et al.* 2002; Lang and Lundholm 1993; Chow and Wong-Boren 1987; Singhvi and Desai 1971). There are several ways in which firm size can be measured for example, Barako (2004) and Watson *et al.* (2002) use total assets to measure firm size. Chow and Wong-Boren (1987) utilise the market value of equity and the book value of debt. In Australia, McKinnon and Dalimunthe (1993) apply the log of total assets and the log of the number of shareholders to measure firm size, while Taylor (2008) and Morton and Harrison (2009) uses the natural log of total assets to measure the firm size, which is similar with other studies (Baek *et al.* 2004; Larcker and Richardson 2004; Coulton *et al.* 2001; Lakhali 2005). For this doctorate, firm size is measured as the natural logarithm of total assets. As suggested by Hossain *et al.* (1994), the natural logarithmic transformation is used to reduce skewness in the data set.

4.6 Measurement of Control Variables

In order to control for other effects on the dependent variables, six control variables are employed. These are: Leverage (LEV) - Ratio of total liabilities to total assets; and Non-audit fees (NAF) - Ratio of non-audit related fees to total audit fees. These variables (LEV and NAF) are treated as continuous variables in the statistical analysis. The categorical control variables employed are:

Profit/Loss firm (PLF) - (1 for profit firm and 0 for loss firm); Industry (IND) - Dummy variable for four major categories of industry (Resources, Manufacturing, Services and Financials (Tower *et al.* 1999)); Audit type (AUDTYPE) - Dichotomous variable for type of auditor (1 for Big4, 0 for Non-Big4); and Auditor's name (AUDNAME)- Dummy variable for specific auditor's name (1 for KPMG Peat Marwick (KPMG); 2 for Ernst & Young (EY); 3 for Deloitte & Touche (DT); 4 for Price Waterhouse Coopers (PWC) and 5 for other audit firms (Others). Table 4.6 shows the measurement utilised for these control variables.

Table 4.6: Control Variables Measurement

Control Variables	Measurement	Type of Measurement
Leverage (LEV)	Total liabilities divided by total assets (Lakhal 2005) Ratio of total debt to total assets (Morton and Harrison 2009; Barako <i>et al.</i> 2006; Raffournier 1995)	Continuous
Non audit fees (NAF) (auditor independence)	Ratio of non-audit related fees to total audit fees (Frankel <i>et al.</i> 2002; Habib and Azim 2008; Larcker and Richardson 2004)	Continuous
Profit/Loss Firm (PLF)	1 for profit firm and 0 for loss firm	Categorical
Industry (IND)	Dummy variable for four major categories of industry: for Resources; for Manufacturing; for Services and For Financials (Tower <i>et al.</i> 1999)	Categorical
Audit type (AUDTYPE)	Dichotomous variable for type of auditor: (1) for Big4 and (0) for Non-Big4 (Barako <i>et al.</i> 2006; Al Farooque <i>et al.</i> 2008; Oliveira <i>et al.</i> 2006)	Categorical
Auditor's name (AUDNAME)	Dummy variable for specific auditor's name: (1) for KPMG Peat Marwick (KPMG); (2) for Ernst & Young (EY); (3) for Deloitte & Touche (DT); (4) for Price Waterhouse Coopers (PWC); and (5) for other audit firms (Others)	Categorical

Legend: Six control variables

4.7 Research Design

This thesis adopts a positivist empirical approach, which aims to explain possible reasons behind a company's incentives to disclose financial ratios in their annual reports. Using disclosure indices, this research focuses not only on the *extent* of the financial ratio

disclosures, but also explores the *quality* of such disclosure. This section outlines the sample selection procedure, empirical model equations and statistical analysis utilised in this thesis.

4.7.1 Sample Selection

The 2007 year annual reports of 300 listed Australian companies are examined to relate the *extent* of disclosures of financial ratio information and the *quality* of financial ratios information disclosed against key predictor variables. The companies are stratified (only to ensure equal samples across the four main industry groups) randomly selected from Australian Stock Exchange (ASX). The following criteria are applied in selecting sample firms:

1. The firms are selected from the four major industry categories: resources, manufacturing, services and financials (Tower *et al.* 1999).
2. The annual reports of firms are available on-line, either through the ASX or firm's website.

4.7.2 Empirical Regression Model Equations

Two multivariate regression models are developed in order to test the association between each dependent variable (EFRD and QFRD) and the predictor variables. Equation 1 (EFRD Main Model 1) is then further sub-divided into five key sub-categories of financial ratio: *Share Market Measures, Profitability, Capital Structure, Liquidity* and *Cash Flow* ratio. Similarly, Equation 2 (QFRD Main Model 2) is also sub-divided into four key sub-categories (*Relevance, Reliability, Comparability* and *Understandability*).

$$EFRD_j = a_j + \beta_1 CG_j + \beta_2 CM_j - \beta_3 OC_j + \beta_4 FSIZE_j + \beta_5 LEV_j + \beta_6 NAF_j + \beta_7 PLF_j + \beta_8 IND_j + \beta_9 AUDTYPE_j + \varepsilon_j$$

[1]

$$QFRD_j = a_j + \beta_1 CG_j + \beta_2 CM_j - \beta_3 OC_j + \beta_4 FSIZE_j + \beta_5 LEV_j + \beta_6 NAF_j + \beta_7 PLF_j + \beta_8 IND_j + \beta_9 AUDTYPE_j + \varepsilon_j$$

[2]

Where:

Dependent Variables:

EFRD_j = Extent of Financial Ratio Disclosures for firm *j*;

QFRD_j = Quality of Financial Ratio Disclosures for firm *j*;

Independent Variables:

CG_j = Corporate governance composite score for firm *j*;

CM_j = Capital management composite score for firm *j*;

OC_j = Ownership concentration (Top 20) score for firm *j*;

FSIZE_j = Natural log of total assets for firm *j*;

Control Variables:

LEV_j = Ratio of total liabilities to total assets for firm *j*;

NAF_j = Ratio of non-audit related fees to total audit fees for firm *j*;

PLF_j = Dummy variable (1) for profit firm; (0) for loss firm for firm *j*;

IND_j = Dummy variable for four major categories of industry (Resources, Manufacturing, Services and Financials) for firm *j*;

AUDTYPE_j = Dummy variable for type of auditor (1) Big4; (0) Non-Big4 for firm *j*;

α_i = Intercept;

β = Estimated coefficient for each item or category; and

ε_i = Error term.

4.7.3 Statistical Analysis

This study employs various statistical techniques to test the relationship between dependent and predictor variables. Firstly, descriptive statistics such as frequency, mean, median, variance, standard deviation and range of minimum and maximum are utilised. Descriptive statistics provide important information about the nature or pattern of all tested variables. Further, univariate analysis that describes a linkage between the dependent variables and predictor variables are also conducted. These techniques include t-tests and analysis of variance (ANOVA).

In order to further investigate the relationship between all variables and to have insights into the tested hypotheses, correlation analysis is conducted. Any potential multicollinearity problems are also addressed. Finally, Ordinary Least Square (OLS) multiple regression analysis is utilised to confirm whether the hypotheses being tested are accepted or rejected.

4.7.4 Further Analysis

Further analysis is conducted to ascertain additional insights about variables. The EFRD is further divided into five sub-categories, while QFRD is further categorised into four sub-categories. In addition, the industry (IND) variable is then classified into six (instead of four) categories and the auditor-linked variable is also labelled according to their names (AUDNAME).

4.8 Summary

The aim of this thesis is to investigate the determinants of the *extent* and *quality* of financial ratio disclosures for 300 Australian listed firms. Using a financial ratio disclosures index and a matrix of qualitative characteristics, these indices are developed to capture the EFRD and QFRD constructs. Applying agency theory, it is believed that corporate governance, capital management activities, ownership concentration and firm size could affect the extent and quality of financial ratio disclosures in company's annual report. Other possible control variables adopted are company's characteristics such as level of leverage, profitability, industry category as well as audit-related variables (audit independence, audit type and auditor's name).

In order to test the hypotheses, several statistical analyses are conducted such as descriptive statistics, analysis of variance, correlations and multiple regressions. Apart from that, additional analysis also has been conducted to gain further insights into the impact of predictor variables on the dependent variables.

CHAPTER 5: FIRMS' CHARACTERISTICS

5.1 Introduction

Chapter Four specifies the research design employed in this thesis. This chapter describes the characteristics of the sample firms. The main focus of this chapter is to provide descriptive statistics for the independent and control variables. There are four (4) independent variables and six (6) control variables. The descriptive statistics for the dependent variables (EFRD and QFRD) are presented in Chapters Six and Seven respectively.

5.2 Independent Variables

In order to explain the variation of dependent variables (EFRD and QFRD), there are four (4) independent variables analysed: 1) Corporate governance (CG), 2) Capital management (CM), 3) Ownership concentration (OC) and 4) Firm size (FSIZE). According to agency theory, these variables could be used to address the conflicting interest between the owners and managers of the firm. It is believed that through enhanced disclosure, managers will minimise agency costs by providing information that is potentially useful for decision making process to users. This section discusses the nature of these firm variables.

5.2.1 Descriptive Statistics (CG, CM, OC and FSIZE)

The first independent variable employed in this study is Corporate Governance (CG). The strength of corporate governance structure is measured as a composite measure of thirteen key items recommended by the ASX Corporate Governance Council (2003). This index provides the aggregate level of corporate governance practices among sample firms. The next independent variable is Capital Management (CM). This is a composite measure of

companies' capital management activities which deal with capital raising activities, mergers and acquisition, international listing and operational status. Both of these variables are originally developed by Taylor *et al.* (2008). Further, Ownership Concentration (OC) measures the level of Top 20 shareholdings and Firm Size (FSIZE) is calculated as the natural log of companies' total assets.

According to Table 5.1, Australian listed companies have a mean of 78.9% of the thirteen key corporate governance attributes. Companies are engaged in 40.4% of capital management activities comprising capital raising activities, mergers and takeovers, overseas listing and international operations. On average, the percentage of Top 20 shareholders as a measure of ownership concentration is 65.4%, with a maximum level of 99.3%. Firm size is highly positively skewed with the mean being \$8,831,395,177, far higher than the median \$165,112,743 (refer also to Appendix C). Consequently, firm size is recomputed as the natural log of total assets, ranging between 13.613 and 27.059, and with a mean of 19.168.

Table 5.1: Descriptive Statistics for Independent Variables

	CG (%)	CM (%)	OC (%)	FSIZE (\$ amount)	FSIZE (Natural log)
Mean	78.9	40.4	65.4	8,831,395,177	19.168
Median	84.5	50.0	67.0	165,112,743	18.922
SD	21.0	18.1	17.1	52,612,178,167	2.486
Minimum	0	0	7	816,720	13.613
Maximum	100	100	99.3	564,634,000,000	27.059

Legend: CG is a composite measure of corporate governance; CM is a composite measure of capital management; OC is the ownership concentration percentage; FSIZE is the firm size shown both as a raw dollar figure and then recomputed as the natural log; SD is standard deviation; n=300.

5.2.2 Descriptives for Individual Items of CG and CM

With regard to corporate governance and capital management measures, this sub-section provides additional analysis by focusing on each individual item that comprises each index. CG consists of thirteen (13) items, while CM measures a composite score for four (4) items.

Table 5.2 reveals the percentage score of each individual item of corporate governance attributes for the 300 Australian sample firms. Overall, almost 80% of the companies have implemented the thirteen principles and recommendations of corporate governance. These results are slightly lower compared to the ASX (2008) study which was based on 28 items. They find the overall corporate governance reporting level of listed companies for 2007 annual reports is 90.5%, a slight increase from 90% in 2006. CG1 measures whether the board of directors is chaired by an independent director and the result shows that 70% of the sample firms comply with this recommendation. Also, 87% of the sample firms have a different person as the Chairman and CEO of the firm, as measured by CG2.

Table 5.2: Individual Items of Corporate Governance Attributes

Description of the Corporate Governance Items		Percentage
CG1	Is chairman of the board an independent director? 1=Yes; 0=No	70.0
CG2	Are the roles of the chairman and chief executive officer performed by different persons? 1=Yes; 0=No	87.0
CG3	If percentage of independent directors on the BOD < median=0; if percentage of independent director on the BOD ≥ median=1	51.3
CG4	Does the nomination committee have a policy for the appointment of directors? 1=Yes; 0=No	55.0
CG5	Has the board adopted a formal code of conduct that deals with personal behaviour of directors and key executives relating to insider trading, confidentiality, conflicts of interest and making use of corporate opportunities (property, information, position)? 1=Yes; 0=No	90.3
CG6	Does the company have a formal plan, policy or procedures in respect of equity (shares and options) based remuneration paid to directors and key executives? 1=Yes; 0=No	90.0
CG7	Does the company have a remuneration policy that outlines the link between remuneration paid to directors and key executives and corporate performance? 1=Yes; 0=No	83.7
CG8	Does the audit committee have at least one member that has financial expertise (i.e. is a qualified accountant or other financial professional with experience of financial and accounting matters)? 1=Yes; 0=No	81.7
CG9	Has the board adopted a formal integrated risk management policy that deals with risk oversight and management and internal control? 1=Yes; 0=No	92.3
CG10	Has the CEO/CFO stated that the company's risk management, internal compliance and control systems are operating effectively and efficiently? 1=Yes; 0=No	75.7
CG11	Does the company have an audit committee (AC) charter? 1=Yes; 0=No	83.0
CG12	Does the company have a formal written continuous disclosure policy? 1=Yes; 0=No	92.0
CG13	If percentage of independent directors on AC < median=0; if percentage of independent director on AC ≥ median=1	74.0
Average CG		78.9

Legend: The 13 items listed in Table 5.2 are equally weighted and averaged to compute the composite CG score.

To provide a better measurement, CG3 is modified from Taylor *et al.* (2008), which used an arbitrary cut-off-point of 70% and ASX Corporate Governance Council (2003), which recommended 'majority' term. This new measurement is used to avoid an overly subjective approach (see related Section 4.5.1). Table 5.2 shows that 51.3% of the 300 sample firms having equalled or exceeded their median score of percentage of independent directors on the board of directors. Whilst for CG4, Table 5.2 reveals that 55.0% of the firms clearly communicate a policy for the appointment of directors. These two CG measures (CG3 and CG4) score the lowest from the total thirteen elements (51.3% and 55.0% respectively).

The CG5-CG9 elements score above 80%, with the highest score of 92.3% for CG9. CG9 shows that 92.3% of companies' board of directors have adopted and disclosed a formal integrated risk management policy dealing with risk oversight and management, and internal control. About 90% of the companies adopt and disclose a formal code of conduct (CG5) and also adopt and disclose a policy for equity-based remuneration (CG6). For CG7, 83.7% of the firms have a clearly communicated performance-linked remuneration policy. In addition, CG10 (which relates to the CEO/CFO statement about company's risk management) and CG12 (which measures the communication of formal written continuous disclosure policy) scores 75.7% and 92% respectively.

Items CG8, CG11 and CG13 are related to the audit committee structure as discussed earlier in Section 4.5.1. Table 5.2 shows that CG8 and CG11 scores are 81.7% and 83%. CG13 highlights that the percentage of independent directors on the audit committee as compared to their median is 74%.

Overall, the average composite score of CG is approximates 80%, implying that Australian listed companies have a high level of corporate governance structure. From the 13 items, only two items (CG3 and CG4) have a score less than 70%, but still above 50%.

Table 5.3 shows the percentage score for each individual item of capital management activity. Overall, about 40% of the sample firms are involved in some way with these (four) capital management activities. This result is consistent with Taylor *et al.* (2008) who study the four-year period from 2003-2006. About 90.7% of the companies engaged in capital raising activities (such as a new share issue) and more than half of them belong to a corporate group that has international operations. However, less than 10% of the sample firms are involved in merger or takeover activity in 2007 or are listed on an overseas stock exchange.

Table 5.3: Individual Items of Capital Management Activity

Description of Capital Management Items		Percentage
CM1	Has the company engaged in capital raisings such as a new share issue in the current year? (1=Yes; 0=No).	90.7
CM2	Has the company engaged in takeover or merger activity in the current year? (1=Yes; 0=No).	7.3
CM3	Is the company listed on an overseas stock exchange? (1=Yes; 0=No).	6.3
CM4	Does the company belong to a corporate group that has operations overseas? (1=Yes; 0=No).	57.2
Average CM		40.4

In summary, the independent variables utilised in this study are Corporate Governance (CG), Capital Management (CM), Ownership Concentration (OC) and Firm Size (FSIZE). On average, the 300 Australian sample companies have implemented almost 80% of the thirteen corporate governance recommendations, are involved in

about 40% of capital management activities, have an average 65% ownership concentration for the Top 20 shareholders with an average natural log total assets of 19.168.

5.3 Control Variables

This thesis employs six control variables namely leverage, non-audit fees, profitability, industry, audit type and auditor's name. Two of them are continuous variables, while the remaining four are categorical variables.

The continuous control variables are: Leverage (LEV) – ratio of total liabilities to total assets; and auditor's independence is measured as a ratio of non-audit service fees to total audit fees (NAF). On average, the companies have a leverage ratio of 44%. In other words, those companies' total assets are almost double their total liabilities.

Table 5.4: Descriptive Statistics for Continuous Control Variables

	Mean	Median	SD	Min	Max
LEV (%)	44.0	43.5	31.8	4	364.4
NAF (%)	27.1	22.3	23.6	0	93.2
Non audit fees (\$)	46,458,174	62,745	532,638,568	0	8,618,823,529
Audit fees (\$)	175,449,933	158,373	2,142,237,467	5,200	3,488,636,3636
Total fees (\$)	221,908,106	253,548	2,376,188,838	6,000	34,917,272,727

Legend: LEV is a ratio of total liabilities to total assets; NAF is a ratio of non-audit fees to total audit fees; SD is standard deviation; n=300.

Non-audit fees (NAF) is a measure of the percentage of non-audit related fees to total fees derived by the audit firm. On average, companies have non-audit fees of \$46,458,174; audit-related fees of \$175,449,933 and total audit fees of \$221,908,106. There are companies (59 companies that represent almost 20% of the sample firms) which only pay audit-related fees. Thus, for the audit independence variable, companies have 27.1% of non audit-related service fees to total fees. This result implies that, out of total audit fees paid to auditors, nearly 30% of them are for non-audit related services.

The other control variables used are Industry (IND)- categorised into four major classifications: Resources, Manufacturing, Services and Financials; Profitability (PLF) is segregated as one (1) for profit firm and zero (0) for loss firm and Type of auditor (AUDTYPE) also measured as a categorical variable, where label of one (1) is assigned to Big4 audit firms, otherwise zero (0). Finally, auditor's name (AUDNAME) is measured by giving a label of one (1) for KPMG Peat Marwick (KPMG), two (2) for Ernst & Young (EY), three (3) for Deloitte & Touche (DT), four (4) for PriceWaterhouse Coopers (PWC) and five (5) for other audit firms (Others). Table 5.5 presents the descriptive statistics for these categorical control variables for the 300 Australian sample firms.

Table 5.5: Descriptive Statistics for Categorical Control Variables

Control Variables	Frequency	Percentage
Industry Category		
Resources	75	25
Manufacturing	75	25
Services	75	25
Financials	75	25
Profit/Loss Firms		
Profit	212	71.7
Loss	88	29.3
Type of Auditor		
Big4	192	64.0
Non-Big4	108	36.0
Auditor's Name		
KPMG	49	16.3
EY	61	20.3
DT	30	10.0
PWC	52	17.4
Others	108	36.0

Legend: KPMG is KPMG Peat Marwick; EY is Ernst & Young; DT is Deloitte & Touche; PWC is PriceWaterhouse Coopers and Others are all other audit firms.

In summary, control variables are additional possible predictors based on past studies. For the 300 Australian sample firms, on average the level of leverage is approximately 40% and these firms have incurred about 30% of non-audit related fees as a portion of total audit fees. In addition, 71.7% of these companies are generating profit during 2007 financial year end and 64% of them are audited by Big4 audit firms (KPMG, EY, DT and PWC).

5.4 Summary

This chapter provides descriptive statistics for the independent and control variables. This chapter focused on the characteristics of the 300 Australian selected firms. The analysis shows that the sample firms applied most (78.9%) of the recommendations made by the ASX Corporate Governance Council, are moderately (40.4%) involved in capital management activities, have concentrated top

twenty ownership structures (65%) and have large (but positively skewed) total assets. This chapter also discusses the level of leverage, profitability, industry categorisation and audit-linked attributes for sample firms. The next chapter analyses the first dependent variable, Extent of Financial Ratio Disclosures (EFRD).

CHAPTER 6: DATA ANALYSIS FOR EXTENT OF FINANCIAL RATIO DISCLOSURES (EFRD)

6.1 Introduction

This chapter provides the results of data analysis for the first dependent variable, EFRD and its sub-categories. First, it focuses on descriptive statistics of EFRD and the five key sub-categories. This is then followed by univariate tests. Next, the correlations between variables are examined. Finally, this chapter discusses the results of the multivariate statistical analysis.

6.2 Extent of Financial Ratio Disclosures (EFRD)

The EFRD measures the extent of financial ratio disclosures in companies' annual reports. An index composed of the sum of 43 ratios is developed based on past literature to capture this dependent variable. There are five key sub-categories of EFRD, namely *Share Market Measures (SMM)*, *Profitability (PROF)*, *Capital Structure (CS)*, *Liquidity (LIQ)* and *Cash Flow (CF)* ratios (refer Table 4.1).

6.3 Descriptive Statistics

This section is divided into two sub-sections. First, the descriptive statistics are presented (Section 6.3.1) for the EFRD including its five key sub-categories. Section 6.3.2 then provides descriptive results for each individual item of EFRD.

6.3.1 EFRD and Five Sub-categories

Table 6.1 illustrates the descriptive statistics for EFRD and its key sub-categories (please refer Appendix D for histograms). On average, the percentage of financial ratio disclosures by companies

is very low, with a mean of only 5.3%. The median is even lower (2.3%) and standard deviation is 5.6% (ranging from 0 – 30.2%).

Table 6.1: Descriptive Statistics for EFRD and Five Sub-categories

	EFRD	SMM	PROF	CS	LIQ	CF
Mean (%)	5.3	9.0	7.4	7.9	0.9	0.2
Median (%)	2.3	9.1	0	0	0	0
SD (%)	5.6	9.6	10.8	12.5	4.6	1.7
Min. (%)	0	0	0	0	0	0
Max. (%)	30.2	36.4	55.6	57.1	42.9	22.2

Legend: EFRD is the acronym for Extent of Financial Ratio Disclosures; with its five sub-categories namely *Share Market Measures* (SMM), *Profitability* (PROF), *Capital Structure* (CS), *Liquidity* (LIQ) and *Cash Flow* (CF) ratios; SD is standard deviation; n=300.

As shown in Table 6.1, the *Share Market Measures* sub-category has the highest level of communication (mean of 9%). The other two sub-categories (*Profitability* and *Capital Structure*) rate at 7.4% and 7.9 respectively. The final two sub-categories (*Liquidity* and *Cash Flow*) have less than 1% disclosure. The highest individual item score is *Profitability* sub-category (55.6%) while the maximum value for the *Cash Flow* sub-category is only 22.2%.

6.3.2 Individual Items of EFRD

Table 6.2 shows substantial levels of non-disclosure across the firms in terms of specific ratios (refer Appendix B for the specific formulas).

Table 6.2: Extent of Financial Ratio Disclosures by Sub-categories and Items

Categories	Ratio	Percentage
1. Share Market Measures (9.0%)	1.Total shareholder return (TSR)	27.0
	2.Net tangible assets per share (NTAB)	25.7
	3. Dividend payout	20.7
	4.Dividend yield	18.3
	5.Net assets per share (NAB)	3.7
	6.Market capitalisation	1.7
	7.Price-to-earnings (P/E)	1.0
	8.Earnings yield	1.0
	9.Price-to-book	0
	10.Book value per ordinary share	0
	11.Market-to-book ratio	0
2. Capital Structure (7.9%)	1.Gearing	26.7
	2.Times interest earned	15.3
	3.Total debt/equity	7.0
	4.Capitalisation ratio	2.7
	5.Equity ratio	2.0
	6.Liabilities/ assets	1.3
	7.Long Term debt/equity	0
3. Profitability (7.4%)	1.Return on equities (ROE)	21.7
	2.EBITDA/ Revenue	15.0
	3.Gross profit margin	7.3
	4.Total expenses/revenue	7.0
	5.Return on assets (ROA)	5.3
	6.Net profit margin	5.0
	7.Pre-tax profit margin	4.0
	8.Return on sales	0.7
	9.Sales turnover	0.3
4. Liquidity (0.9%)	1.Current ratio	3.0
	2.Inventory turnover	1.0
	3.Quick ratio	0.7
	4.Days to sell inventory	0.7
	5.Accounts receivable turnover	0.3
	6.Collection period	0.3
	7.Payment period	0
5. Cash Flow (0.2%)	1.Operation index	1.0
	2.Cash flow adequacy	0.3
	3.Cash flow ratio	0.3
	4.Repayment long term borrowings	0
	5.Dividend payment	0
	6.Reinvestment	0
	7.Debt coverage	0
	8.Cash flow to revenue	0
	9.Cash flow return on assets	0
Overall EFRD		5.3

Legend: All 43 ratio percentages are calculated as the mean average of 300 sample companies. The five key sub-categories mean averages are also measured.

For the *Share Market Measures* sub-category, only total 'Shareholders return', 'Net tangible assets per share' and 'Dividend payout' are disclosed by at least 20% of the sample firms. 'Gearing' (26.7%) and 'Return on equities' (21.7%) are among the most frequently reported ratios for *Capital Structure* and *Profitability* sub-categories. The next highest percentages of presented ratios include 'Dividend yield' (18.3%), 'Times interest earned' (15.3%) and 'EBITDA/Revenue' (15.3%). All other financial ratios have less than 10% of the firms' disclosures. There are zero levels of reporting for 11 ratios.

Overall, the EFRD for the 300 Australian firms within the companies' annual reports is 5.3%, with *Share Market Measures*, *Capital Structure* and *Profitability* sub-categories score the highest. Individual ratios most commonly reported are 'Total shareholders return', 'Net tangible assets per share', 'Dividend payout', 'Gearing' and 'Return on equities'. There are still a considerable number of individual financial ratios that are not communicated at all (Table 6.2).

6.4 Univariate Statistics

Univariate analysis is conducted between the dependent variable, EFRD including key sub-categories and the categorical predictor variables employed in this thesis (Profit/Loss, Big4/Non-Big4, audit firm name and industry category). The purpose of this analysis is providing preliminary insights on the relationships between variables. The t-tests are conducted to ascertain the relationships between the two groups (categories) and the continuous dependent variables. On the other hand, the ANOVA test is used to examine whether three or more groups (categories) are different (Saunders *et al.* 2007). Further, post-hoc test indicates which

category is making the difference. The results for these tests (t-test, ANOVA and post-hoc tukey test) are presented in this section.

6.4.1 Profit/Loss Firms and Audit Firm Type Analysis for EFRD

As shown in Table 6.3, the mean EFRD is significantly different ($p < 0.01$) for the loss firms as compared to the profit firms. Profit firms disclose almost six times more financial ratios than loss firms. One possible reason is that profitable firms like to show their stakeholders that they are making profit and are performing well by disclosing more financial ratios, a quick and clear tool in evaluating a company's performance. Loss companies on the other hand have little incentive to expand the communication of their negative performance through greater usage of financial ratios.

Table 6.3: T-test EFRD with Profit/Loss Firms and Audit Firm Type

	EFRD				
	N	Mean (%)	Mean Difference (%)	t-stats	Sig.
Profit/Loss firms					
Loss	88	1.2	-5.8	-12.657	0.000*
Profit	212	7.0			
Audit firm type					
Non-Big4	108	2.4	-4.5	-8.473	0.000*
Big4	192	6.9			

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); EFRD is Extent of Financial Ratio Disclosures; Big4 audit firms are KPMG Peat Marwick, Ernst & Young, Deloitte & Touche and PriceWaterhouse Coopers; Non-Big4 audit firms are all others.

The t-test also reveals that companies audited by Big 4 audit firms have significantly ($p < 0.01$) higher means for EFRD. Companies audited by Big 4 audit firms voluntarily provide almost three times more ratio information to readers. This is consistent with the

Barako (2004) and Hossain *et al.* (1994) findings that Big 4 firms can enhance firm reporting quality (Appendix E clearly highlights these findings).

6.4.2 Profit/Loss Firms and Audit Firm Type Analysis for EFRD Sub-categories

For deeper analysis of EFRD, t-tests are also performed for five key sub-categories of EFRD (*Share Market Measures, Profitability, Capital Structure, Liquidity and Cash Flow*). Results are presented in Table 6.4.

Table 6.4: T-test EFRD Sub-categories with Profit/Loss Firms and Audit Firm Type

Sub-EFRD		N	Mean (%)	Mean Dif. (%)	t-stat	Sig.
Profit/Loss Firms						
Share Market Measures	Loss	88	3.0	-8.5	-9.744	0.000*
	Profit	212	11.5			
Profitability	Loss	88	1.0	-9.0	-9.911	0.000*
	Profit	212	10.0			
Capital Structure	Loss	88	1.1	-9.6	-8.755	0.000*
	Profit	212	10.7			
Liquidity	Loss	88	0.2	-0.9	-2.446	0.015**
	Profit	212	1.1			
Cash Flow	Loss	88	0.0	-0.3	-1.901	0.059***
	Profit	212	0.3			
Audit Firm Type						
Share Market Measures	Non- Big4	108	5.1	-6.1	-6.247	0.000*
	Big4	192	11.2			
Profitability	Non- Big4	108	2.7	-7.3	-7.223	0.000*
	Big4	192	10.0			
Capital Structure	Non- Big4	108	2.6	-8.3	-6.761	0.000*
	Big4	192	10.9			
Liquidity	Non- Big4	108	0.9	0.1	0.194	0.846
	Big4	192	0.8			
Cash Flow	Non- Big4	108	0.1	-0.1	-0.632	0.528
	Big4	192	0.2			

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); The five key sub-categories of EFRD are Share Market Measures, Profitability, Capital Structure, Liquidity and Cash Flow Ratio; Big4 audit firms are KPMG Peat Marwick, Ernst & Young, Deloitte & Touche and PriceWaterhouse Coopers; the Non-Big4 audit firms category are all other audit firms.

Table 6.4 reveals that the mean for all the sub-categories are consistent with the overall EFRD score. For each category, profit companies disclose more than loss companies. The first three sub-categories are highly significant at $p < 0.01$, the fourth category is significant at $p < 0.05$ and the last category moderately significant at $p < 0.10$. These findings are consistent with previous studies (Mitchell 2006; Watson *et al.* 2002; Gibson 1982). Ratios belonging to these sub-categories are typically used and disclosed in the annual reports by companies to promote positive financial performance.

For sub-categories *Share Market Measures*, *Profitability* and *Capital Structure*, audit firm type also show significant ($p < 0.01$) mean differences between Non-Big4 and Big4 audit firms. The companies audited by Big4 audit firms disclose more ratio information belonging to these three sub-categories in their annual reports (twice, four and four times respectively) compared to their counterparts. The *Liquidity* and *Cash Flow* categories are not statistically different either for both profit/loss firms and audit firm type categories. The very low scores in these latter two categories are difficult to distinguish statistically and thus are not affected by choice of auditor.

The following four sub-sections provide more details of the categorical analysis using ANOVA tests.

6.4.3 Auditor's Name Analysis for EFRD

Table 6.5 reveals that there is a significant difference ($p < 0.01$) in EFRD in the annual reports based on auditor's name ($F(4,295) = 13.900$). This analysis expands the previous analysis by broadening the audit firm categories according to their name including KPMG

Peat Marwick, Ernst & Young, Deloitte & Touche, PriceWaterhouse Coopers and all *other* audit firms.

Table 6.5: ANOVA EFRD with Auditor's Name

Auditor's Name	EFRD		
	N	Mean (%)	F
			13.900
			Sig.
			0.000*
KPMG	49	7.8	
EY	61	6.2	
DT	30	6.5	
PWC	52	7.2	
Others ²¹	108	2.4	

Legend: *, **, *** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); EFRD is Extent of Financial Ratio Disclosures; KPMG is KPMG Peat Marwick; EY is Ernst & Young; DT is Deloitte & Touche; PWC is PriceWaterhouse Coopers and Others are all other audit firms.

In Table 6.6, the additional Tukey HSD (honestly significant different) post-hoc test confirms that *Others* (Non-Big4) audit firm are statistically ($p < 0.01$) lower than each of the Big4 firms (KPMG, EY, DT and PWC) for EFRD. Companies audited by Big4 auditors consistently disclose approximately three times more financial ratio information. Interestingly, there is no significant difference among Big4 auditors; the companies they audit all fall within a narrow 6% to 7% range of financial ratio disclosures.

²¹ To further check the *Others* audit firms, it is divided into three sub-categories; (1) BDO Kendalls (BDO) with mean 3.1% (n=25), (2) PKF with mean 1.7% (n=15) and (3) all the remaining audit firms (n=68). All the *Others* audit client firms have fundamentally lower financial ratio disclosures than any of the Big4, with a mean of 2.4%. Further statistical analysis reveals that there is no significant difference between these groups. Thus, the measurement of *Others* audit firm type remain as reported in the main text.

Table 6.6: TUKEY HSD EFRD with Auditor's Name

EFRD			
Auditor's Name		Mean Difference (%)	Sig.
KPMG	EY	1.7	0.449
	DT	1.3	0.803
	PWC	0.7	0.966
	Others	5.4	0.000*
EY	KPMG	-1.7	0.449
	DT	-0.3	0.998
	PWC	-1.0	0.847
	Others	3.7	0.000*
DT	KPMG	-1.3	0.803
	EY	0.3	0.998
	PWC	-0.7	0.982
	Others	4.1	0.001*
PWC	KPMG	-0.7	0.966
	EY	1.0	0.847
	DT	0.7	0.982
	Others	4.7	0.000*
Others	KPMG	-5.4	0.000*
	EY	-3.7	0.000*
	DT	-4.1	0.001*
	PWC	-4.7	0.000*

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); EFRD is Extent of Financial Ratio Disclosures; KPMG is KPMG Peat Marwick; EY is Ernst & Young; DT is Deloitte & Touche; PWC is PriceWaterhouse Coopers and Others are all other audit firms.

6.4.4 Auditor's Name Analysis for EFRD Sub-categories

Consistent with the t-test result between EFRD and auditor's name, the ANOVA test in Table 6.7 for Sub EFRD is also significant for three key sub-categories: *Share Market Measures*, *Profitability* and *Capital Structure*, with $F(4, 295) = 8.397, 9.922$ and 8.847 respectively, $p < 0.01$. Again, the final two sub-categories *Liquidity* and *Cash Flow* show no variance in relation to audit firm, probably due to their very low levels of disclosure. Further, Tukey HSD test also suggests that companies audited by four Big4 auditors (KPMG, EY, DT and PWC), have significantly ($p < 0.01$) higher disclosures of

these three sub categories of ratio as compared to *Others* auditor (refer Appendix F).

Table 6.7: ANOVA EFRD Sub-categories with Auditor's Name

Sub-EFRD	Auditor's Name	N	Mean (%)	F	Sig.
Share Market Measures				8.397	0.000*
	KPMG	49	11.7		
	EY	61	10.0		
	DT	30	10.9		
	PWC	52	12.4		
	Others	108	5.1		
Profitability				9.922	0.000*
	KPMG	49	12.5		
	EY	61	9.1		
	DT	30	8.1		
	PWC	52	9.8		
	Others	108	2.7		
Capital Structure				8.847	0.000*
	KPMG	49	12.5		
	EY	61	10.1		
	DT	30	10.0		
	PWC	52	10.7		
	Others	108	2.6		
Liquidity				0.754	0.556
	KPMG	49	0.6		
	EY	61	0.2		
	DT	30	1.9		
	PWC	52	1.1		
	Others	108	0.9		
Cash Flow				0.616	0.652
	KPMG	49	0.5		
	EY	61	0.2		
	DT	30	0.4		
	PWC	52	0.0		
	Others	108	0.1		

Legend: *, **, *** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); The five key sub-categories of EFRD are Share Market Measures, Profitability, Capital Structure, Liquidity and Cash Flow Ratio; KPMG is KPMG Peat Marwick; EY is Ernst & Young; DT is Deloitte & Touche; PWC is PriceWaterhouse Coopers and Others are all other audit firms.

6.4.5 Industry-based Firm Analysis for EFRD

Table 6.8 reports that there is significant difference ($p < 0.01$) in EFRD between the four key industry sectors ($F(3,296) = 6.706$). This result implies that firms belonging to different industry sectors disclose different levels of EFRD. Table 6.9 Tukey HSD post-hoc test shows that the *Financials* and *Services* sectors are significantly ($p < 0.01$) higher in providing financial ratio information in the annual reports than the *Resources* sector.

Table 6.8: ANOVA EFRD with Four Industry Categories

EFRD				
	N	Mean (%)	F	Sig.
Industry4			6.706	0.000*
Resources	75	3.1		
Manufacturing	75	5.1		
Services	75	6.1		
Financials	75	6.9		

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); EFRD is Extent of Financial Ratio Disclosures; Industry4 is four major categories of industry (Tower *et al.*, 1999) namely Resources, Manufacturing, Services and Financials.

Table 6.9: TUKEY HSD EFRD with Four Industry Categories

EFRD				
Industry4		Mean Difference (%)	Sig.	
Resources	Manufacturing	-2.0	0.121	
	Services	-3.0	0.004*	
	Financials	-3.7	0.000*	
Manufacturing	Resources	19.6	0.121	
	Services	-1.1	0.635	
	Financials	-1.8	0.193	
Services	Resources	3.0	0.004*	
	Manufacturing	1.1	0.635	
	Financials	-0.7	0.852	
Financials	Resources	3.7	0.000*	
	Manufacturing	1.8	0.193	
	Services	0.7	0.852	

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); EFRD is Extent of Financial Ratio Disclosures; Industry4 is four major categories of industry (Tower *et al.*, 1999) namely Resources, Manufacturing, Services and Financials.

These results are consistent with those obtained by Mitchell (2006) who found that the mining sector disclosed significantly less share market ratio information compared to that disclosed by other sectors (in his case manufacturing, industrial, household and investment & miscellaneous services sector). Watson *et al.* (2002) note that media and utilities industries are less likely to disclose than other industries (consumer goods, manufacturing and mineral extraction).

Additional sensitivity analysis is carried out in Appendix G to see if further insights are gained by looking at six (instead of four) key industries. The results for six industries are virtually the same for that of four. Resources (split into energy and materials²² remain very low, 4.9% and 2.3% respectively). Services remains at a middle score of 5.5% Consumer Discretionary and a higher 7.8% for Consumer Staples respectively). Overall, the industry analysis reveals low communication scores for resource-style firms (especially materials) and highest for financial firms.

6.4.6 EFRD Industry Sub-categories

Table 6.10 displays the ANOVA result between each of the sub-categories of EFRD and four industry sectors. There is a significant difference ($p < 0.01$) for *Share Market Measures* and *Profitability* (and $p < 0.05$ for *Capital Structure*) sub-categories of EFRD. The results are $F(3,296) = 13.271, 5.449$ and 1.249 , respectively for each of the three sub-categories.

²² These two GICS categories are classified under one major industry category namely Resources.

Table 6.10: ANOVA EFRD Sub-categories with Four Industry Categories

Sub-EFRD	Industry4	N	Mean (%)	F	Sig.
Share Market Measures				13.271	0.000*
	Resources	75	5.8		
	Manufacturing	75	7.0		
	Services	75	8.7		
	Financials	75	14.4		
Profitability				5.449	0.001*
	Resources	75	3.4		
	Manufacturing	75	7.3		
	Services	75	9.9		
	Financials	75	8.9		
Capital Structure				2.858	0.037**
	Resources	75	4.6		
	Manufacturing	75	9.4		
	Services	75	9.9		
	Financials	75	7.6		
Liquidity				1.249	0.292
	Resources	75	0.6		
	Manufacturing	75	1.5		
	Services	75	1.1		
	Financials	75	0.2		
Cash Flow				0.912	0.436
	Resources	75	0.4		
	Manufacturing	75	0.0		
	Services	75	0.1		
	Financials	75	0.1		

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); The five key sub-categories of EFRD are Share Market Measures, Profitability, Capital Structure, Liquidity and Cash Flow Ratio; Industry4 is four major categories of industry (Tower *et al.*, 1999) namely Resources, Manufacturing, Services and Financials.

To summarise, the reported EFRD in the Australian companies' annual reports is very low in absolute terms. The most reported sub-categories of financial ratio are *Share Market Measures*, *Profitability* and *Capital Structure*. There are also significant

differences relating to profit/loss firms, audit and industry-linked EFRD, particularly for the sub-categories of *Share Market Measures*, *Profitability* and *Capital Structure*. Resource firms have significantly lower disclosures, again for these first three sub-categories.

6.5 Correlations

Table 6.11 presents Pearson (upper right) and Spearman²³ (lower left) correlation coefficients between the dependent, independent and control variables. This table holds two purposes: 1) ascertain the relationships between dependent and independent variables; and 2) examines the relationships between independent variables.

As expected, there is a positive relationship between EFRD and each of three key sub-categories; *Share Market Measures*, *Profitability* and *Capital Structure* both for Pearson ($r=0.783$, $r=0.791$, $r=0.771$, $p<0.01$ respectively) and Spearman ($r_s=0.798$, $r_s=0.795$, $r_s=0.745$, $p<0.01$ respectively) correlations. This relationship is significantly higher compared to the other two sub-categories (*Liquidity* and *Cash Flow*). These latter two sub-categories are probably less correlated due to their extremely low numbers (less than 1%, see Table 6.1).

Insights can also be noted between the dependent and predictor variables. Firm size, corporate governance and capital management (independent variables) are positively significantly correlated with EFRD. In contrast, auditors' name (control variable) is negatively related. These results support H_1 , H_2 and H_4 , which directly link EFRD with corporate governance, capital management

²³ Pearson correlation is typically used for parametric data, while on the other hand, Spearman correlation is usually presented for non-parametric data (Field 2005).

and firm size variables (see Section 2.4.1, 2.4.2 and 2.4.4). However, there is no statistical relationship between ownership concentration and EFRD, thus H₃ is not supported in this correlation analysis.

The relationships between the predictor (independent and control) variables reveals that there is a positive relationship between firm size and leverage, non-audit related fees, profit/loss firms, industry and audit type for both Pearson and Spearman correlations. The larger the firm, the higher the leverage ratio and non-audit related fees. Larger firms are also more likely to be profit firms and audited by Big4 audit firms. In contrast, firm size is negatively correlated to auditor's name for both Pearson and Spearman correlations. Audit type is significantly correlated ($p < 0.001$) with auditor's name in the opposite direction for both Pearson ($r = -0.803$) and Spearman ($r_s = -0.860$) correlations. As the correlation coefficient is above the critical limits of 0.80 (Hair *et al.* 2006) between these variables, multicollinearity may exist. Therefore, these two predictor variables (auditor type and auditor name) are not included in the regression model simultaneously.

Table 6.11: Pearson and Spearman Correlations (EFRD)

	DEPENDENT VARIABLES				INDEPENDENT VARIABLES						CONTROL VARIABLES					
	EFRD	SMM	PR	CS	LIQ	CF	CG	CM	OC	FS	LEV	NAF	PLF	IND	AT	AN
EFRD		0.783*	0.791*	0.771*	0.334*	0.106***	0.392*	0.173*	-0.003	0.625*	0.265*	-0.035	0.477*	0.246*	0.387*	-0.323*
SMM	0.798*		0.435*	0.401*	0.130**	0.022	0.371*	0.117**	-0.012	0.543*	0.156*	0.003	0.404*	0.321*	0.309*	-0.227*
PR	0.795*	0.461*		0.474*	0.139	0.015	0.289*	0.164*	-0.036	0.548*	0.287*	0.012	0.378*	0.197*	0.325*	-0.300*
CS	0.745*	0.402*	0.538*		0.243*	0.082	0.316*	0.122**	0.027	0.436*	0.217*	-0.037	0.349*	0.087	0.321*	-0.279*
LIQ	0.247*	0.050	0.145**	0.217*		-0.021	-0.052	0.057	0.057	0.038	0.005	-0.134**	0.098	-0.037	-0.011	0.044
CF	0.110***	0.030	0.050	0.055	-0.025		0.030	0.028	-0.022	-0.032	-0.007	0.014	0.071	-0.049	0.037	-0.069
CG	0.487*	0.437*	0.359*	0.396*	-0.039	0.035		0.207*	0.003	0.554*	0.243*	0.163*	0.303*	0.079	0.415*	-0.293*
CM	0.187*	0.115**	0.199*	0.127**	0.068	0.030	0.196*		-0.019	0.297*	0.152*	0.093	0.041	-0.049	0.205*	-0.106***
OC	0.011	-0.032	0.008	0.027	0.100***	-0.026	-0.008	-0.035		0.088	0.178*	0.129**	0.184*	0.027	0.082	-0.018
FS	0.635*	0.535*	0.543*	0.483*	0.036	-0.011	0.615*	0.300*	0.132**		0.332*	0.175*	0.528**	0.218*	0.499*	-0.394*
LEV	0.347*	0.205*	0.371*	0.336*	0.016	-0.012	0.363*	0.230*	0.171*	0.485*		-0.013	0.179**	0.136**	0.182*	-0.135**
NAF	0.066	0.054	0.076	0.010	-0.127**	0.038	0.216*	0.101***	0.127**	0.230*	0.063		0.091	-0.011	0.213*	-0.088
PLF	0.554*	0.427*	0.440*	0.385*	0.102	0.075	0.324**	0.066	0.186*	0.555*	0.294*	0.121*		0.360**	0.279*	-0.220*
IND	0.261*	0.328*	0.208*	0.097***	-0.037	-0.026	0.087	-0.025	0.021	0.190*	0.168*	-0.008	0.360*		0.019	-0.005
AT	0.397*	0.309*	0.324*	0.349*	-0.011	0.027	0.423*	0.207*	0.087	0.518*	0.273*	0.224*	0.279*	0.019		-0.803*
AN	-0.338*	-0.236*	-0.288*	-0.323*	0.031	-0.044	-0.331*	-0.133**	-0.030	-0.435*	-0.220*	-0.129**	-0.239*	-0.010	-0.860*	

Legend: *, **, *** Correlation is highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); EFRD= Extent of Financial Ratio Disclosures; SMM= Share Market Measures Ratio; PR= Profitability Ratio; CS= Capital Structure Ratio; LR= Liquidity Ratio; CF= Cash Flow Ratio; CG= Corporate Governance; CM= Capital Management; OC= Ownership Concentration; FS= Firm Size; LEV= Leverage; NAF= Non audit fees, PLF= Profit/ Loss Firms, IND= Industry, AT= Audit type, AN= Auditor's name

6.6 Multivariate Statistics

This section provides the findings for multivariate statistics. Firstly, the model is presented. This is followed by the results for the main model of this thesis. Finally, multivariate analysis for each sub-category of the main model is discussed in depth.

6.6.1 Multivariate Main Model 1 (EFRD)

In addition to descriptive and univariate analyses, multivariate analysis using ordinary least square regressions (OLS) was performed. The hypothesised variables are Corporate Governance (CG), Capital Management (CM), Ownership Concentration (OC) and Firm Size (FSIZE), while Leverage (LEV), Non-audit Fees (NAF), Profit/Loss Firm (PLF), Industry (IND) and Audit Type²⁴ (AUDTYPE) are utilised as control variables. Using regression analysis, it is expected that CG, CM and FSIZE will have a positive relationship with EFRD, on the other hand, OC will have a negative influence. The following equation (Main Model 1) is applied:

²⁴ There are multicollinearity problems between Audit Type (AUDTYPE) and Auditor's Name (AUDITNAME). Therefore, AUDITNAME is excluded from this regression analysis (see discussion in Section 6.5).

$$EFRD_j = \alpha_j + \beta_1 CG_j + \beta_2 CM_j - \beta_3 OC_j + \beta_4 FSIZE_j + \beta_5 LEV_j - \beta_6 NAF_j + \beta_7 PLF_j + \beta_8 IND_j + \beta_9 AUDTYPE + \varepsilon_j$$

Where:

Dependent Variable:

$EFRD_j$ = Extent of Financial Ratio Disclosures for firm j ;

Independent Variables:

CG_j = Corporate governance composite score for firm j ;

CM_j = Capital management composite score for firm j ;

OC_j = Ownership concentration score for firm j ;

$FSIZE_j$ = Natural log of total assets for firm j ;

Control Variables:

LEV_j = Ratio of total liabilities to total assets for firm j ;

NAF_j = Ratio of non-audit related fees to total audit fees for firm j ;

PLF_j = Dummy variable (1) for profit firm; (0) for loss firm for firm j ;

IND_j = Dummy variable for four major categories of industry (Resources, Manufacturing, Services and Financials) for firm j ;

$AUDTYPE_j$ = Dummy variable for type of auditor (1) Big4; (0) Non-Big4 for firm j ;

α_j = Intercept;

β = Estimated coefficient for each item or category; and

ε_i = Error term

Further, there are five key sub-categories of EFRD, namely *Share Market Measures* (SMM), *Profitability* (PROF), *Capital Structure* (CS), *Liquidity* (LIQ) and *Cash Flow* (CF). Using this classification, additional regression analysis for each sub-category with predictor variables is conducted. This generates further insights into the possible factors explaining why firms disclose financial ratios in their annual reports.

6.6.2 Multivariate Results for Main Model 1

Table 6.12 reports the result for multiple regressions of the Main Model 1. As shown, the adjusted R^2 is about 45%, which implies that the model can explain almost half of variation of the EFRD. This estimation provides a "...good gauge of substantive size of the

relationship” (Field 2005, p.150). The overall model is also significant with p-value of 0.000 and F statistics of 28.268.

Table 6.12: Multiple Regressions Main Model 1 (EFRD)

EFRD			
Adjusted R ²	0.451		
Observations	300		
F Statistics	28.268		
Significance	0.000*		
Variables	Coefficients	t-stat	P-value
Intercept	-0.156	-6.620	0.000*
CG	0.013	0.891	0.373
CM	0.003	0.191	0.849
OC	-0.026	-1.765	0.079***
FSIZE	0.010	6.766	0.000*
LEV	0.009	1.147	0.252
NAF	-0.036	-3.389	0.001*
PLF	0.024	3.569	0.000*
IND	0.030	1.481	0.140
AUDTYPE	0.014	2.403	0.017**

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively; EFRD is Extent of Financial Ratio Disclosures; CG is Corporate governance; CM is Capital management; OC is Ownership concentration; FSIZE is Firm size; LEV is Leverage; NAF is Non-audit fees; PLF is Profit/Loss firm; IND is Industry; AUDTYPE is type of auditor (Big4-NonBig4).

As explained in Chapter 3, H₁ proposed that the stronger the corporate governance structures of the firm, the more likely the firm will disclose financial ratios in their annual report. This expectation is based on the notion that the existence of corporate governance mechanisms would enhance financial reporting practices. This could be achieved because the information gap between internal and external parties of the firm could be reduced by providing additional or voluntary information. Table 6.12 shows that the correlation co-efficient between CG and EFRD is 0.013 in a positive direction with t-statistic of 0.891. However, the p-value is not statistically significant. Therefore, H₁ is not supported. This finding implies that the strength of corporate governance does not

matter in deciding whether to disclose or not to disclose the financial ratios in the annual report.

The next relationship is between EFRD and CM. Capital management initiatives consist of capital raising activities, takeovers and mergers activities, overseas listing as well as international operations. These activities possibly widen the stakeholders of the firms, and both directly and indirectly would again generate or extend information asymmetry problems. Therefore, it is hypothesised (H_2) that the CM will have a positive relationship with EFRD. As reported in Table 6.12, the result is not significant for CM (even the correlation direction is as expected). It appears that these activities (capital raising and internationalisation) do not have predictive properties in determining the extent of financial ratio disclosures. H_2 is rejected.

Further, this study seeks to explain the influence of ownership concentration and EFRD. The argument is based on the proposition that the more concentrated the ownership structure; agency problems will be lower. This is because the firm is owned by the non-dispersed owners, and this is more likely to reduce conflicts of interest. In this study, OC is measured as the percentage of shareholding held by the top 20 shareholders of the firm. Thus, H_3 expects that fewer financial ratio disclosures will be observed for firms with higher ownership concentration. Table 6.12 shows that the correlation coefficient for OC is -0.026 with t-statistic of -1.765. As the direction is as expected (negative association) with p-value of 0.079, the OC is moderately significant for EFRD and thus, H_3 is supported. The power of the top 20 shareholders may have a moderate impact on the companies' financial ratio disclosure incentives. Less financial ratio reporting is observed for firms with higher percentage of top 20 shareholders.

Hypothesis four (H_4) tests the association between the firm size and EFRD. It is argued that larger firms will disclose more financial ratios than smaller firms. This argument is based on the perspective that larger firms more likely would have greater agency costs, and therefore through discretionary disclosure, costs could be reduced. Firm size is measured by the natural log of total assets in order to reduce the skewness of the data. The regression results confirm the positive association between FSIZE and EFRD, (p-value of 0.000). The finding illustrates that the larger the firm, the higher the level of financial ratio disclosures in annual reports. By disclosing financial ratios, larger firms could provide new or additional information to the users, and more likely would reduce their costs to obtain that information. Therefore, H_4 is supported.

In addition to the independent variables, the association between EFRD and several control variables is also determined using OLS. Interestingly, three control variables are found to significantly impact the financial ratio disclosure practices of the firm. Firstly, NAF measured the percentage of non-audit related fees to the total audit fees. This variable represents the non-independence of the auditor towards the firm that they audited. The higher the percentage of NAF, the more non-audit related tasks are conducted by the auditor, and thus affect their independence. It is argued that the more non-independent the auditor, the lower is the quantity and quality of financial ratio reporting of the firm. The table shows the negative and highly significant association between NAF and EFRD (p-value of 0.001). This result implies firms with a higher percentage of non-related audit fees provide less financial ratio disclosures.

Secondly, PLF categorised firms as profit or loss firms. The finding confirms that the profitable firms provide significantly more

financial ratio information compared to the loss firms. This result is consistent with univariate tests. Profitable firms disclose financial ratios as they are important in highlighting profits. Thirdly, AUDTYPE classified auditors into two main categories, Big4 and Non-Big 4 auditor. The regression results indicate that companies audited by Big4 audit firms disclose significantly more financial ratio information in the annual reports. Audit-related variables have a major impact on the financial ratio disclosures, which demonstrate the influence of the auditors on the companies' financial reporting practices. However, Table 6.12 also shows that the other two control variables (Leverage and Industry categories) are not statistical predictors of EFRD.

6.6.3 Multivariate Results for EFRD Sub-categories

In order to get further insights on the predictors of each sub-category of EFRD, five additional multiple regressions are performed and the results are revealed in Table 6.13.

Table 6.13: Summary of Multiple Regressions of EFRD Sub-categories

	SMM	PROF	CS	LIQ	CF
Adjusted R ²	0.351	0.331	0.239	0.022	-0.005
Observations	300	300	300	300	300
F Statistics	19.003	17.417	11.435	1.751	0.838
Significance	0.000*	0.000*	0.000*	0.077***	0.581
Variables	p-value	p-value	p-value	p-value	p-value
Intercept	(0.000)*	(0.000)*	(0.001)*	(0.955)	0.060***
CG	0.062***	(0.381)	0.188	(0.188)	0.528
CM	(0.744)	0.851	(0.970)	0.233	0.475
OC	(0.256)	(0.015)*	(0.585)	0.346	(0.501)
FSIZE	0.000*	0.000*	0.001*	0.545	(0.061)***
LEV	(0.341)	0.012**	0.224	(0.715)	0.875
NAF	(0.043)**	(0.160)	(0.002)*	(0.011)*	0.854
PLF	0.086***	0.029**	0.004*	0.053***	0.030**
IND	0.000*	0.389	(0.345)	(0.161)	(0.247)
AUDTYPE	0.183	0.093***	0.021**	(0.780)	0.507

Legend: *, **, *** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively; P-value in bracket shows negative association; SMM is Share Market Measures; PROF is Profitability, CS is Capital Structure; LIQ is Liquidity and CF is Cash Flow; CG is Corporate governance; CM is Capital management; OC is Ownership concentration; FSIZE is Firm size; LEV is Leverage; NAF is Non-audit fees; PLF is Profit/Loss firm; IND is Industry; AUDTYPE is type of auditor (Big4-NonBig4).

SMM measures the extensiveness of financial ratio disclosures of *Share Market Measures* ratios. This category comprises 11 ratios (see Table 6.2) which relate to market-based ratios. This set of items is most extensively disclosed of the five EFRD sub-categories (Table 6.1). The adjusted R² 35% figure implies that about 65% of the variation is still to be accounted by other variables. SMM model is significant at 1% level, with F statistics of 19.003. CG is positive and moderately significant (p-value at 10% level) in determining the SMM ratios, which demonstrates that the strength of corporate governance structures have moderate influence on this particular disclosure policy. However, CM and OC do not have any impact on the decision of reporting SMM. As expected, FSIZE is positively and

highly significant (at the 1% level) associated with SMM disclosure. The larger the firm, the more SMM ratios are disclosed by the firms. This result is consistent with the Main Model 1 regression analysis. Further, NAF which measures the non-independence of auditor also has significant influence on SMM. The result implies that the higher the non-independent auditor, the lesser the SMM is provided in the annual reports. There is also evidence that profitable companies moderately disclosed more SMM as compared to the loss firms. It seems that annual reporting is more likely being used by profitable firms as a platform to present the SMM and also to publicise their good news. Interestingly, industry is found as a significant (at 1% level) predictor for SMM, where different industries significantly disclose different levels of SMM. This is possibly due to the different nature of information needed by the users of different industries. Univariate tests confirm that the *Financials* industry significantly disclose higher SMM ratios compared to the other three industry categories.

The second EFRD sub-category PROF (Profitability) consists of nine (9) profit-related ratios (refer Table 6.2). The regression results show that the model is significant at the 1% level, with adjusted R^2 of 33.1%. It implies that about 67% of the variation is still to be accounted by other variables. Table 6.13 reveals that OC is associated with PROF in a negative direction at the 5% level. The finding illustrates that the higher the concentration levels of top 20 ownership, the lower the level of PROF (Profitability) ratios reported by the firms. This result is consistent with that of the Main Model 1. Again, FSIZE is found positively and highly significant (at 1% level) in determining the level of PROF. Larger firms tend to report more PROF (Profitability) ratios, which is consistent with the Main Model 1 and SMM ratios. For the PROF set of financial ratios, H_1 and H_2 are rejected but H_3 and H_4 are accepted. The relationship

between LEV and PROF is also evidenced. Companies with higher level of total liabilities to total assets ratio are more likely to provide PROF (Profitability) ratios (significant at the 5% level) than their counterparts. In addition, profit firms also disclose more PROF ratios compared to the loss firms. This result is consistent for the overall EFRD and SMM models. Finally, firms audited by Big4 audit firms are also more likely to report the PROF ratios in their annual reports (at 10% level). The result implies that Big4 auditors could influence a company to provide this ratio category to the users in order to give them a better picture of a company's economic performance.

For the EFRD CS (Capital Structure) sub-category Table 6.13 illustrates that FSIZE, NAF and PLF are highly significant (at the 1% level) and thus H_4 is accepted. The result also suggests that FSIZE and PLF have a positive association, while NAF has the opposite direction, as expected. Furthermore, AUDTYPE also has significant (at the 5% level) impact on the disclosure policy of CS (Capital Structure) ratios.

In contrast, for LIQ (Liquidity) and CF (Cash Flow) models there are no statistically significant predictors. One possible reason is the far lower percentages of these ratios that are being reported in the annual reports (with mean of almost 0% for both LIQ (Liquidity) and CF (Cash Flow) categories-see Table 6.1. The lack of variation limits the statistical analysis on these variables.

6.7 Summary

This chapter provides evidence for the first dependent variable, EFRD and its five key sub-categories. The analyses include the descriptive, univariate, correlation and multivariate statistics. Table

6.14 is a summary of the regression results for the Main Model 1, EFRD and the five key sub-categories. Hypotheses three and four (which are related to ownership concentration and firm size) are supported for the Main Model 1. Firm size hypotheses are also supported for the first three sub-categories (Share Market Measures (SMM), Profitability (PROF) and Capital Structure (CS)).

Further, there are several control variables found to be significant predictors. Profit/Loss firm is significant for all six models. Audit related variables (Non-audit Related Fees and Big4 auditor) are significant for four and three models respectively. While leverage and industry is found significant for one model each.

Table 6.14: Summary of Multiple Regression EFRD and Sub-categories

	EFRD	SMM	PROF	CS	LIQ	CF
Adjusted R ²	0.451	0.351	0.331	0.239	0.022	-0.005
Hypotheses:						
H ₁	NS	S*	NS	NS	NS	NS
H ₂	NS	NS	NS	NS	NS	NS
H ₃	S*	NS	S	NS	NS	NS
H ₄	S	S	S	S	NS	S*
Control variables:						
LEV	NP	NP	SP	NP	NP	NP
NAF	SP	SP	NP	SP	SP	NP
PLF	SP*	SP	SP	SP	SP*	SP
IND	NP	SP	NP	NP	NP	NP
AUDTYPE	SP	NP	SP*	SP	NP	NP

Legend: EFRD is Main Model 1; EFRD is Extent of Financial Ratios Disclosures; SMM is Share Market Measures; PROF is Profitability; CS is Capital Structure; LIQ is Liquidity; CF is Cash Flow; S is Supported; NS is Not Supported; SP is Significant Predictor; NP is Not Significant Predictor; * only moderate statistical support (p-value ranging 0.05≤p≤0.10)

A parallel analysis of QFRD and its four sub-categories namely *Relevance, Reliability, Comparability* and *Understandability* is provided in Chapter Seven.

CHAPTER 7: DATA ANALYSIS FOR QUALITY OF FINANCIAL RATIO DISCLOSURES (QFRD)

7.1 Introduction

In Chapter Six, the data analysis for the first dependent variable, EFRD is presented. This chapter provides the results of the data analysis for the second dependent variable, Quality of Financial Ratio Disclosures (QFRD). The discussion is based on the results of descriptive statistics, univariate tests, correlations and multivariate statistical analysis.

7.2 Quality of Financial Ratio Disclosures (QFRD)

While EFRD measures the *extent* of financial ratio disclosures, the QFRD alternatively measures the *quality* of such disclosure. In order to achieve this objective, a 12-item matrix is developed based on IASB and AASB Conceptual Frameworks and is further sub-divided into four key sub-categories: *Relevance*, *Reliability*, *Comparability* and *Understandability*. This chapter offers an innovative approach for measuring quality. This research utilises the IASB/AASB accounting framework qualitative characteristics. This is a novel yet preliminary contribution to the accounting disclosure literature. It is argued that the evolution of the QFRD in this thesis will encourage accounting practitioners and academics to reflect more deeply on the quality of financial reporting.

7.3 Descriptive Statistics

Descriptive statistics highlight the main features of the sample data. In this section, descriptive statistics are highlighted for the: a) aggregate QFRD; b) its four key sub-categories; and c) for each individual item of QFRD.

7.3.1 QFRD and Four Sub-categories

Table 7.1 reports the descriptive results for QFRD and its four sub-categories. This table reveals that the mean quality of QFRD disclosures is higher than EFRD (as detailed in Chapter Six) with an overall mean disclosure of 37.8% and standard deviation of 19.9%. The maximum level of quality disclosure is 85.1%. The median score is 39.6%. Overall, Table 7.1 shows that the quality of reporting (as measured by QFRD) is fundamentally better than the extent (as measured by EFRD); the overall percentage scores is far higher at 37.8% compared to 5.3% respectively (refer to Appendix H for histograms).

Table 7.1: Descriptive Statistics for QFRD and Four Sub-categories

	QFRD	RELV	RELB	COMP	UNDS
Mean (%)	37.8	19.5	54.6	28.0	49.2
Median (%)	39.6	13.7	55.6	36.7	66.7
SD (%)	19.9	20.6	17.8	26.4	41.2
Min. (%)	9.0	0	0	0	0
Max. (%)	85.1	90.3	100	100	100

Legend: QFRD is the acronym for Quality of Financial Ratio Disclosures; with its four key sub-categories namely Relevance (RELV), Reliability (RELB), Comparability (COMP) and Understandability (UNDS); SD is standard deviation; n=300.

Of the four key sub-categories of QFRD, there seems to be a progressive increase in the level of quality. *Reliability* ranks the highest (mean 54.6%); this is closely followed by *Understandability* (49.2%). The final two sub-categories are *Comparability* with a mean of 28% and the lowest being *Relevance* (mean 19.5%) There are companies which met all sub-elements

within three of the sub-categories. No companies have 100% 'quality' reporting.

7.3.2 Individual Items of QFRD

A score is also computed for each individual element of the sub-category of QFRD²⁵ in Table 7.2. *Reliability* scores the highest (54.6%); its three sub-components are *faithful representation* (93.3%), *expertise* (51.1%) and *verifiability* (19.3%). This element measured the reliability of overall financial statements, in which financial ratios are calculated based on the figures from these statements. This result implies that the financial statements of the companies are relatively reliable. Some 99.3% of the financial statements had no qualification of the audit opinion, 51% of the audit committee members have financial expertise and 19.3% of them having purely audit services from the auditor. These three sub-components represent the reliability of financial statements in the QFRD matrix.

The second highest score is the *Understandability* sub-category of QFRD (49.2%). To enhance the understandability of financial ratio analysis to the readers, 58.7% of the companies locate their financial ratios either in the financial highlights or the directors' report sections. These placements are regarded as important sections in the companies' annual reports. In addition, almost half of the sample firms highlight their ratios by using presentation aid-kits such as graphs or tables. Finally, further explanation of ratios is offered by 43% of sample firms.

²⁵ These elements are also sub-divided into two broader categories: ratio specific qualitative characteristics (this consists of prediction, confirmation, temporal, target benchmark, industry consistency, presentation, location and explanation) and financial statements general qualitative characteristics (which consists of timeliness, verifiability, faithful representation and expertise). The mean score for specific quality is 32.14% and 49.26% for general quality. The difference is statistically significant at the 1% level.

In relation to the QFRD *Comparability* sub-category (28%), Table 7.2 shows that more than 50% of the firms present their ratios for at least two consecutive years.

In addition, 23% of the companies' financial ratio disclosures consistently match the industry disclosure level. This implies that on average, a firm within a specific industry only provides a quarter of EFRD as compared to the industry's EFRD they belong to. The lowest score 'providing target benchmarks' is only 8%.

With regard to the QFRD sub-category *Relevance*, the *timeliness* score is 33%, the sample firms publish their annual reports on average 68 days after the financial year end. Generally, companies release their annual reports in a timely manner²⁶ within the required period of three months. Only 17% of the companies used financial ratios to confirm their performance targets, while even fewer (8.3%) utilise financial ratio properties to predict the company's future prospects.

²⁶ Only 1% of the sample firms exceed the three months period.

Table 7.2: Quality of Financial Ratio Disclosures by Sub-categories and Specific Qualitative Characteristics

Sub-QFRD (%)		Specific qualitative characteristics	Percentage
Reliability	54.6	Faithful representation	93.3
		Expertise	51.1
		Verifiability	19.3
Understandability	49.2	Location	58.7
		Presentation	46.0
		Explanation	43.0
Comparability	28.0	Temporal	53.0
		Industry consistency	23.0
		Target benchmark	8.0
Relevance	19.5	Timeliness	33.2
		Confirmation	17.0
		Prediction	8.3
Overall QFRD			37.8

Legend: All 12 quality items percentages are calculated as the mean average of 300 sample companies. The four key sub-categories mean averages are also measured.

Overall, the QFRD is an innovative and very new measure of the quality of financial ratio disclosures in the annual reports. Using the four key sub-categories of qualitative characteristics, twelve individual items of quality are examined. The scores range from 8-93.3%, with the extreme values being the *target benchmark* with the lowest score and *faithful representation* the highest. The overall QFRD ratio average is 37.8% with *Reliability* and *Understandability* sub-categories demonstrating the highest quality out of the four key quality components examined.

7.4 Univariate Statistics

Univariate analysis is also performed for the aggregate QFRD including its key sub-categories. The tests highlight the mean differences between categorical predictor variables with the QFRD dependent variable. As shown in the following six sub-sections, the tests include t-test and ANOVA.

7.4.1 Profit/Loss Firms and Audit Firm Type Analysis for QFRD

The first analysis conducted is the t-test between QFRD with the profit/loss firms and audit firm type (defined as Big4 and Non-Big4 audit firm). As reported in Table 7.3, the mean for QFRD is statistically significantly different ($p < 0.01$) for the loss firms compared to the profit firms. Loss firms disclose less than half the *quality* of financial ratio information compared to profit firms. This result is consistent with profit/loss firms and EFRD (refer to Table 6.3 equivalent findings). This result suggests that profit-making firms provide better quality financial ratio disclosures through annual reports; they are highlighting their success.

Table 7.3: T-test QFRD with Profit/Loss Firms and Audit Firm Type

QFRD					
	N	Mean (%)	Mean Difference (%)	t-stats	Sig.
Profit/Loss firms					
Loss	88	20.8	-24.1	-13.058	0.000*
Profit	212	44.9			
Audit firm type					
Non-Big4	108	28.0	-15.4	-6.942	0.000*
Big4	192	43.4			

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level and moderately significant at the 0.10 level respectively (2-tailed); QFRD is the Quality of Financial Ratio Disclosures; Big4 audit firms are KPMG Peat Marwick, Ernst & Young, Deloitte & Touche and PriceWaterhouse Coopers; Non-big4 audit firms are all others.

Furthermore, Table 7.3 t-tests also reveal that companies audited by Big4 audit firms have highly significantly ($p < 0.01$) higher mean aggregate QFRD scores. Companies audited by Big4 audit firms have higher *quality* financial reporting perhaps arguably because of the higher standard/credibility of these auditors. These results are consistent with Becker *et al.* (1998), Francis *et al.* (1999),

Krishnan (2003) and Francis *et al.* (2005) conclusions that the Big4 audit firms have better audit quality than the Non-Big4 audit firms, and thus influence better reporting.

7.4.2 Profit/Loss Firms and Audit Firm Type Analysis for QFRD Sub-categories

This sub-section provides the t-tests results for each of the four key sub-categories of QFRD. For each, the t-tests are conducted for the categorical predictor variables, profit/ loss firms and the audit firm type.

In Table 7.4, the results reveal that the mean QFRD for three of the four key sub-categories (*Relevance*, *Comparability* and *Understandability*) are significantly different ($p < 0.01$) between loss and profit firms. Profit firms provide over four times more *Understandable* and *Comparable* quality data; and three times more *Relevant* quality information compared to loss firms. These findings are significantly different. However, *Reliable* data tends to be communicated relatively equally for both profit and loss firms (55.7% versus 52.0%).

For audit firm type, Table 7.4 also reports that the key QFRD sub-categories have a significant ($p < 0.01$) mean difference between Non-Big4 and Big4 audit firms. The companies audited by Big4 audit firms have approximately twice the qualitative financial ratios information in their annual reports for *Relevance*, *Comparability* and *Understandability*. The *Reliability* component is slightly higher for Big4 audited firms but not statistically significant for audit firm type.

Table 7.4: T-test QFRD Sub-categories with Profit/Loss Firms and Audit Firm Type

Sub-QFRD		N	Mean (%)	Mean Dif. (%)	t-stat	Sig.
Profit/Loss Firms						
Relevance	Loss	88	7.8	-16.6	-9.940	0.000*
	Profit	212	24.4			
Reliability	Loss	88	52.0	-3.6	-1.364	0.175
	Profit	212	55.7			
Comparability	Loss	88	7.8	-28.6	-11.9	0.000*
	Profit	212	36.4			
Understandability	Loss	88	15.5	-47.7	-12.057	0.000*
	Profit	212	63.2			
Audit Firm Type						
Relevance	Non-Big4	108	11.8	-12.0	-5.736	0.000*
	Big4	192	23.8			
Reliability	Non-Big4	108	52.3	-3.7	-1.513	0.132
	Big4	192	55.9			
Comparability	Non-Big4	108	15.9	-18.9	-6.663	0.000*
	Big4	192	34.8			
Understandability	Non-Big4	108	31.8	-.27.2	-5.786	0.000*
	Big4	192	59.0			

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); The four key sub-categories of QFRD are Relevance, Reliability, Comparability and Understandability; Big4 audit firms are KPMG Peat Marwick, Ernst & Young, Deloitte & Touche and PriceWaterhouse Coopers; Non-Big4 audit firms are all others.

7.4.3 Auditor's Name Analysis for QFRD

Table 7.5 details the results for each specific audit firm. The findings reveal that there are a significant differences ($p < 0.01$) of QFRD in the annual reports audited by different auditors ($F(4,295) = 12.622$). However, further analysis in Table 7.6 leads to the same clear conclusion related to the Big4 and Non-Big4 audit firms shown in Table 7.4.

Table 7.5: ANOVA QFRD with Auditor's Name

QFRD				
	N	Mean (%)	F	Sig.
Auditor's name			12.622	0.000*
KPMG	49	45.2		
EY	61	41.3		
DT	30	41.1		
PWC	52	45.5		
Others	108	28.0		

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); QFRD is Quality of Financial Ratio Disclosures; KPMG is KPMG Peat Marwick; EY is Ernst & Young; DT is Deloitte & Touche; PWC is PriceWaterhouse Coopers and Others are all other audit firms.

In Table 7.6, an additional Tukey HSD post-hoc test shows that *other* audit firms are statistically ($p < 0.01$) lower than KPMG Peat Marwick (KPMG), Ernst & Young (EY), Deloitte & Touche (DT) and PriceWaterhouse Coopers (PWC) for QFRD. There is a very close uniformity of QFRD disclosures amongst the firms audited by each Big4 firm. PWC clients are slightly higher for the QFRD but the scores between the individual Big4 auditors range narrowly between 41-45.5%. However, the *other* auditor clients QFRD measure is far lower at 28% (refer Table 7.5).

Table 7.6: TUKEY HSD QFRD with Auditor's Name

QFRD			
Auditor's Name		Mean Difference (%)	Sig.
KPMG	EY	3.9	0.807
	DT	4.1	0.873
	PWC	-0.3	1.000
	Others	17.2	0.000*
EY	KPMG	-3.9	0.807
	DT	0.2	1.000
	PWC	-4.2	0.749
	Others	13.3	0.000*
DT	KPMG	-4.1	0.873
	EY	-0.2	1.000
	PWC	-4.4	0.836
	Others	13.1	0.006*
PWC	KPMG	0.3	1.000
	EY	4.2	0.749
	DT	4.4	0.836
	Others	17.5	0.000*
Others	KPMG	-17.2	0.000*
	EY	-13.3	0.000*
	DT	-13.1	0.006*
	PWC	-17.5	0.000*

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); QFRD is Quality of Financial Ratio Disclosures; KPMG is KPMG Peat Marwick; EY is Ernst & Young; DT is Deloitte & Touche; PWC is PriceWaterhouse Coopers and Others are all other audit firms.

7.4.4 Auditor's Name Analysis for QFRD Sub-categories

An analysis of variance (ANOVA) is also carried out for each sub-category of QFRD. Three sub-categories (*Relevance*, *Comparability* and *Understandability*) are found to be highly significant ($p < 0.01$), with $F(4,295) = 7.582$, 10.600 and 9.693 respectively. For the *Relevance* sub-category sample firms audited by Big4 audit firms have at least twice the relevant financial ratio information. This result is consistently mirrored for *Comparability* and *Understandability* sub-categories. In contrast, in the *Reliability* sub-category, the 'others' category *Reliability* scores (52.3%) is very close to the Big4 auditors range (53.9%-59.9% and is thus

not statistically significantly different for Big4 and Non-Big4 audit firms.

Table 7.7: ANOVA QFRD Sub-categories with Auditor's Name

Sub QFRD	Auditor's Name	N	Mean (%)	F	Sig.
Relevance				7.582	0.000*
	KPMG	49	27.4		
	EY	61	19.7		
	DT	30	26.7		
	PWC	52	23.6		
	Others	108	11.8		
Reliability				1.860	0.117
	KPMG	49	54.3		
	EY	61	59.9		
	DT	30	53.9		
	PWC	52	54.0		
	Others	108	52.3		
Comparability				10.600	0.000*
	KPMG	49	37.1		
	EY	61	33.7		
	DT	30	29.3		
	PWC	52	37.1		
	Others	108	15.9		
Understandability				9.693	0.000*
	KPMG	49	61.9		
	EY	61	51.9		
	DT	30	54.5		
	PWC	52	67.3		
	Others	108	31.8		

Legend:*,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); The four key sub-categories of QFRD are Relevance, Reliability, Comparability and Understandability; KPMG is KPMG Peat Marwick; EY is Ernst & Young; DT is Deloitte & Touche; PWC is PriceWaterhouse Coopers and Others are all other audit firms.

7.4.5 Industry-based Firm Analysis for QFRD

As with the EFRD examination in Chapter 6, the industry-based firm analysis is also conducted for QFRD. Table 7.8 reveals that there are highly statistically significant differences of QFRD in the

annual reports between the four major types of industry, $F(3,296) = 12.777, p < 0.01$.

Table 7.8: ANOVA QFRD with Four Industry Categories

QFRD				
	N	Mean (%)	F	Sig.
Industry4			12.777	0.000*
Resources	75	28.8		
Manufacturing	75	38.0		
Services	75	36.8		
Financials	75	47.7		

Legend: *, **, *** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); QFRD is Quality of Financial Ratio Disclosures; Industry4 uses four key categories of industry based on Tower *et al.*, (1999) namely Resources, Manufacturing, Services and Financials.

As a confirmation, Tukey HSD post-hoc test shows that the *Financials* sector is significantly ($p < 0.01$) higher in providing QFRD in the annual reports (at a 47.7% rate) than the *Resources*, *Manufacturing* and *Services* sectors respectively (28.8%-38.0%). This Table 7.9 result is consistent with the earlier EFRD findings (see Chapter Six).

Table 7.9: TUKEY HSD QFRD with Four Industry Categories

QFRD			
Industry4		Mean Difference (%)	Sig.
Resources	Manufacturing	-9.2	0.016
	Services	-8.0	0.047
	Financials	-18.9	0.000*
Manufacturing	Resources	9.2	0.016
	Services	1.2	0.982
	Financials	-9.8	0.009*
Services	Resources	8.0	0.047**
	Manufacturing	-1.2	0.982
	Financials	-10.9	0.002*
Financials	Resources	18.9	0.000*
	Manufacturing	9.8	0.009*
	Services	10.9	0.002*

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); QFRD is Quality of Financial Ratio Disclosures; Industry4 is four major category of industry (Tower *et al.*, 1999) namely Resources, Manufacturing, Services and Financials.

7.4.6 Industry-based Firm Analysis for QFRD Sub-categories

Further analysis on the industry-based data is advanced for each sub-category of QFRD. All four qualitative characteristics of *Relevance, Reliability, Comparability* and *Understandability* sub-category results reveal that there is significant difference ($p < 0.01$) between the quality of financial ratio information in the *Resources* industry and the other three industry categories. 'Quality' reporting by Resource firms are consistently lower than firms belonging to other industries.

Table 7.10: ANOVA QFRD Sub-categories with Four Industry Categories

Sub-QFRD	Industry4	N	Mean (%)	F	Sig.
Relevance	Resources	75	11.7	8.393	0.000*
	Manufacturing	75	19.9		
	Services	75	18.4		
	Financials	75	27.9		
Reliability	Resources	75	55.4	4.122	0.007*
	Manufacturing	75	53.1		
	Services	75	50.1		
	Financials	75	59.9		
Comparability	Resources	75	17.9	8.001	0.000*
	Manufacturing	75	28.7		
	Services	75	27.2		
	Financials	75	38.3		
Understandability	Resources	75	30.2	9.824	0.000*
	Manufacturing	75	50.2		
	Services	75	51.6		
	Financials	75	64.9		

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); The four key sub-categories of QFRD are Relevance, Reliability; Comparability and Understandability; Industry4 is four major category of industry (Tower *et al.*, 1999) namely Resources, Manufacturing, Services and Financials.

In summary, the overall level of QFRD is 37.8% with core sub-categories ranging from 19.5-54.6%. Quality financial ratio information within the *Reliability* and *Understandability* sub-categories are the best provided by companies. Less quality financial ratio information belonging to the *Comparability* and *Relevance* sub-categories are published. Further, profit firms and Big4 audit firms' clients significantly provide a higher quality of financial ratio information.

7.5 Correlations

This section focuses on the correlations between the second dependent variable, QFRD with the independent and control variables. Consistent with the Section 6.5 discussion, the intention of Table 7.11 is to demonstrate: 1) the relationships between dependent and independent variables; and 2) the relationships between independent variables.

Consistent with EFRD and its sub-categories relationship (as discussed in Chapter Six) and as expected, *Understandability*, *Comparability* and *Relevance* are significantly correlated ($p < 0.01$) with QFRD having high Pearson correlation coefficients of $r = 0.917$, $r = 0.881$, $r = 0.620$ respectively. A similar result is noted with Spearman correlations. *Reliability* is positively correlated with QFRD but with a far lower coefficient for both Pearson and Spearman correlations (0.322 and 0.312 respectively).

For the independent variables, both Pearson and Spearman coefficients show that firm size, corporate governance and capital management are positively significantly correlated with QFRD. These results support H_5 , H_6 and H_8 , which link QFRD with corporate governance, capital management and firm size variables. The H_7 variable (ownership concentration) is not significantly correlated with QFRD (see Table 7.11).

Similar to EFRD, audit type is significantly correlated with auditor's name. Multicollinearity may exist due to the correlation coefficient that exceeds the critical limits of 0.80 (Hair *et al.* 2006). Therefore, one of these variables (auditor's name) is not included in the regression model.

Table 7.11: Pearson and Spearman Correlations (QFRD)

	DEPENDENT VARIABLES					INDEPENDENT VARIABLES				CONTROL VARIABLES					
	QFRD	RELV	RELB	COMP	UNDS	CG	CM	OC	FS	LEV	NAF	PLF	IND	AT	AN
QFRD		.620*	.322*	.881*	.917*	.387*	.140**	.017	.611*	.203*	.008	.553*	.313*	.373*	-.293*
RELV	.645*		.041	.409*	.416*	.308*	.088	.039	.418*	.159*	.112	.366*	.256*	.279*	-.236*
RELB	.312*	.082		.107	.100	.158*	.097	-.038	.121**	-.003	-.246*	.093	.066	.099	-.102
COMP	.894*	.496*	.092		.810*	.337*	.091	.001	.571*	.220*	-.002	.494*	.253*	.344*	-.279*
UNDS	.912*	.481*	.081	.855*		.310*	.126**	.029	.553*	.173*	.068	.528*	.286*	.318*	-.224*
CG	.449*	.440*	.108	.451*	.369*		.207*	.003	0.554*	.243*	.163*	.303*	.079	.415*	-.293*
CM	.151*	.081	.081	.128**	.139**	.196*		-.019	.297*	.152*	.093	.041	-.049	.205*	-.106
OC	.023	.047	-.012	.000	.031	-.008	-.035		.088	.178*	.129**	.184*	.027	.082	-.018
FS	.616*	.526*	.130**	.600*	.567*	.615*	.300*	.132**		.332*	.175*	.528*	.218*	.499*	-.394*
LEV	.300*	.238*	-.020	.325*	.263*	.363*	.230*	.171*	.485*		-.013	.179*	.136**	.182*	-.135**
NAF	.028	.146*	-.285*	.064	.112	.216*	.101	.127**	.230*	.063		.091	-.011	.213*	-.088
PLF	.556*	.454*	.069	.540*	.522*	.324*	.066	.186*	.555*	.294*	.121**		.360*	.279*	-.220*
IND	.310*	.247*	.070	.237*	.288*	.087	-.025	.021	.190*	.168*	-.008	.360*		.019	-.005
AT	.377*	.362*	.119**	.375*	.320*	.423*	.207**	.087	.518*	.273*	.224*	.279*	.019		-.803*
AN	-.320*	-.317*	-.132**	-.320*	-.255*	-.331*	-.133*	-.030	-.435*	-.220*	-.129**	-.239*	-.010	-.860*	

Legend: *, **, ***Correlation is highly significant at the 0.01 level , significant at the 0.05 level and moderately significant at the 0.10 level respectively (2-tailed); QFRD= Quality of Financial Ratio Disclosures; RELV= Relevance; RELB= Reliability; COMP= Comparability; UNDS= Understandability; CG= Corporate Governance; CM= Capital Management; OC= Ownership Concentration; FS= Firm Size; LEV= Leverage; NAF= Non audit fees; PLF= Profit/Loss Firms; IND= Industry; AT= Audit Type; AN= Auditors' name

7.6 Multivariate Statistics

By applying multivariate statistics, this section provides the findings about the impact of predictor variables on the QFRD when they are analysed concurrently. Section 7.5.1 discusses the multivariate model utilised in this analysis, while Sections 7.5.2 and 7.5.3 provide an overview of the detailed results.

7.6.1 Multivariate Main Model 2 (QFRD)

Main Model 2 measures the Quality of Financial ratio disclosures (QFRD). The QFRD matrix is captured through qualitative characteristics advocated by IASB and AASB. The hypotheses variables are again CG, CM, OC and FSIZE. Similar control variables also apply to this model. The equation is:

$$QFRD_j = \alpha_j + \beta_1 CG_j + \beta_2 CM_j - \beta_3 OC_j + \beta_4 FSIZE_j + \beta_5 LEV_j - \beta_6 NAF_j + \beta_7 PLF_j + \beta_8 IND_j + \beta_9 AUDTYPE_j + \varepsilon_j$$

Where:

Dependent Variable:

QFRD_j = Quality of Financial Ratio Disclosures for firm *j*;

Independent Variables:

CG_j = Corporate governance composite score for firm *j*;

CM_j = Capital management composite score for firm *j*;

OC_j = Ownership concentration score for firm *j*;

FSIZE_j = Natural log of total assets for firm *j*;

Control Variables:

LEV_j = Ratio of total liabilities to total assets for firm *j*;

NAF_j = Ratio of non-audit related fees to total audit fees for firm *j*;

PLF_j = Dummy variable (1) for profit firm; (0) for loss firm for firm *j*;

IND_j = Dummy variable for four major categories of industry (Resources, Manufacturing, Services and Financials) for firm *j*;

AUDTYPE_j = Dummy variable for type of auditor (1) Big4; (0) Non-Big4 for firm *j*;

α_j = Intercept;

β = Estimated coefficient for each item or category; and

ε_i = Error term.

7.6.2 Multivariate Results for Main Model 2

The result for the multiple regressions Main Model 2 (QFRD) is reported in Table 7.12. The goodness fit of the model, as portrayed by adjusted R^2 is 46.9%. This implies that about 47% of the variation in QFRD can be explained by the model. The model is highly significant (p -value <0.01) with an F statistic of 30.401.

The fifth hypothesis (H_5) tests the association between corporate governance and the quality of financial ratio disclosures. From an agency theory perspective, it is argued that the existence of good corporate governance practices amongst the firms could enhance the quality of firms' reporting. The stronger the corporate governance elements' being applied by the firms, the higher the quality of financial ratio disclosures expected. As shown in Table 7.12, the correlation coefficient for CG is 0.056, in the expected direction with t-statistics of 1.136. However, the CG elements is not statistically significant (p -value >0.1) in determining the QFRD. The result indicates that the firms do not utilise corporate governance mechanisms to determine the quality of financial ratio reporting. This finding is consistent with EFRD (refer Table 6.12). Therefore, H_5 is not supported.

A similar association is hypothesised between capital management initiative (CM) and QFRD through H_6 . A positive relationship is expected between CM and QFRD, where companies dealing with capital raising activities and involved in international operations will be expected to have higher reporting quality. As reported in Table 7.12, the correlation coefficient between CM and QFRD is -0.002 with p -value of 0.974. Since the p -value is not statistically significant, H_6 is rejected. This implies that capital management activities do not have any influence on the quality of financial ratios provided in the annual reports. The quality of such reporting does

not matter whether companies are involved in capital management initiatives or not.

Table 7.12: Multiple Regressions Main Model 2 (QFRD)

QFRD			
Adjusted R ²	0.469		
Observations	300		
F Statistics	30.401		
Significance	0.000*		
Variables	Coefficients	t-stat	P-value
Intercept	-0.335	-4.051	0.000*
CG	0.056	1.136	0.257
CM	-0.002	-0.033	0.974
OC	-0.076	-1.480	0.140
FSIZE	0.030	5.958	0.000*
LEV	-0.009	-0.298	0.766
NAF	-0.090	-2.432	0.016**
PLF	0.125	5.381	0.000*
IND	0.022	2.707	0.007*
AUDTYPE	0.046	2.189	0.029**

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively; QFRD is Quality of Financial Ratio Disclosures; CG is Corporate governance; CM is Capital management; OC is Ownership concentration; FSIZE is Firm size; LEV is Leverage; NAF is Non-audit fees; PLF is Profit/ loss firm; IND is Industry; AUDTYPE is type of auditor (Big4-NonBig4).

Next, ownership concentration (OC) measures the percentage of shareholding of top 20 shareholders of the firms. It is argued that firms with concentrated ownership structures more likely will have fewer agency problems. H₇ proposes a negative relationship between OC and QFRD. The coefficient correlation between these two variables is in the predicted direction (-0.076) with t-statistics of -1.480. Nevertheless, the p-value shows an insignificant impact of OC on QFRD. The result illustrates that this variable does not have predictive properties for this particular quality matrix component, which is not consistent with the EFRD finding (see Table 6.12). H₇ is not supported.

The final hypothesis posits an association between firm size and QFRD. It is hypothesised that larger firms will provide better quality financial ratio disclosures. This argument is consistent between firm size and EFRD and QFRD, where a larger firm is argued to have higher quantity and quality of reporting in order to reduce agency costs. Table 7.12 shows that FSIZE and QFRD have a positive relationship with a correlation coefficient of 0.030. The p-value is highly significant (at 1% level). Larger firms provide better quality financial ratio disclosures. This finding is consistent with a linkage between FSIZE and EFRD (as discussed in Chapter 6). H_8 is supported.

Regression results for QFRD also reveal the control variables have some predictive properties. NAF significantly (at the 5% level) influences the QFRD in a negative direction. This finding demonstrates that the higher the level of non-independence of auditors, the lower the level of QFRD. In other words, the level of independence of auditors influences the quality of firms' reporting. PLF consistently has a significant impact on the QFRD (at 1% level). This result shows that profit firms provide better quality financial ratio information compared to the loss firms. These companies may see a benefit in providing financial ratios to the readers to signal their financial performance. The industry (IND) variable also turns out to be a significant predictor in determining the QFRD (at 1% level). This implies that different industries provide varying quality of financial ratio disclosures²⁷. Finally, Big4 audit firms also influence a better quality of financial reporting. Table 7.12 reveals that companies audited by Big4 audit firms significantly (at 5% level) have better QFRD compared to Non-Big4

²⁷ A post hoc Tukey test reveals that financial firms have significantly higher QFRD than Resources, Manufacturing and Services sectors.

clients. Big4 audit firms play their roles in encouraging companies to enhance their reporting practices.

7.6.3 Multivariate Results for QFRD Sub-categories

Multiple regressions are also performed for each of the four sub-categories of QFRD. They are *Relevance*, *Reliability*, *Comparability* and *Understandability* models. Similar predictor variables and hypothesised directions are utilised. The results are presented in Table 7.13.

For the *Relevance* model, the adjusted R^2 is 21.3% implying that about 80% of the variation is still to be accounted by other variables. The statistical finding reveals that for the four hypothesised variables, only FSIZE is significant (at 1% level) influences the QFRD (in a positive direction). Larger firms appear to provide faster financial ratio information to the stakeholders (*timeliness*), use more ratios to confirm their targets (*confirmation*) and more often predict the future (*prediction*). Larger firms provide more relevant financial ratio information. Similar findings also apply to profit firms and different industry categories (Financials).

A different story emerges for the *Reliability* model. None of the hypothesised variables are significantly associated with *Reliability*. Only non-audit fees (NAF) matters and has a greater impact (at 1% level). More independent auditors may influence the followings: more unqualified financial statements, more financial expertise on the audit committee and more independent auditors.

The hypothesised variable firm size (FSIZE) again has a highly significant (at the 1% level) impact on both *Comparability* and *Understandability* models. Ownership concentration (OC) is

marginally significant (at the 10% level) for the *Comparability* model only. For the *Comparability* model, larger firms with dispersed shareholders more often provide more than one year financial ratio figures (*temporal*), ratios higher within the industry (*industry consistency*) and provide more benchmark ratios (*target benchmark*). On the other hand, to enhance *Understandability*, larger firms have more ratios located in the financial highlights or directors' report (*location*), more frequently present graphs or tables (*presentation*) and provide more explanation about the ratios (*explanation*).

Table 7.13: Summary of Multiple Regressions of QFRD Sub-categories

	Relevance	Reliability	Comparability	Understandability
Adjusted R ²	0.213	0.097	0.390	0.381
Observations	300	300	300	300
F Statistics	9.981	4.562	22.266	21.412
Significance	0.000*	0.000*	0.000*	0.000*

Variables	p-value	p-value	p-value	p-value
Intercept	(0.002)*	0.000*	(0.000)*	(0.000)*
CG	0.138	0.028**	0.800	(0.903)
CM	(0.767)	0.150	(0.251)	0.930
OC	(0.640)	0.975	(0.076) ***	(0.207)
FSIZE	0.007*	0.707	0.000*	0.000*
LEV	0.842	(0.123)	0.487	(0.778)
NAF	0.524	(0.000)*	(0.032)**	(0.570)
PLF	0.020**	0.620	0.000*	0.000*
IND	0.010*	0.435	0.167	0.039**
AUDTYPE	0.156	0.259	0.056***	0.196

Legend: *,**,*** Highly significant at the 0.01 level, significant at the 0.05 level, moderately significant at the 0.10 level respectively; CG is Corporate governance; CM is Capital management; OC is Ownership concentration; FSIZE is Firm size; LEV is Leverage; NAF is Non-audit fees; PLF is Profit/ loss firm; IND is Industry; AUDTYPE is type of auditor (Big4-NonBig4).

Overall, FSIZE is the most important predictor in determining the sub-categories of QFRD. Other hypothesis variables that are partly significant are corporate governance (CG) and ownership concentration (OC). Several control variables (non-audit fees

(NAF), profit/loss firm (PLF) and industry (IND)) also provide further insight into the quality of reporting practices.

7.7 Summary

This chapter outlines the findings from the data analysis for the second dependent variable, QFRD. The discussion starts from the descriptive statistics, followed by univariate and correlation analysis. Then, the multivariate analysis results are provided. There are four hypotheses (H₅-H₈) being tested in this chapter and there are five regression models being applied (Main Model 2 of QFRD and four sub-QFRD models). Table 7.14 presents the summary of multiple regressions for these five models.

Overall, only the hypothesised variable FSIZE explains all models (except for the *Reliability* model) and therefore H₈ is supported. For the control variables, PLF (Profit/Loss firms) is also a predictor for all models, except *Reliability*. In addition, NAF (Independence of auditor) and IND (Industry) are significant for three out of five models. LEV (Leverage) does not have any impact on any model.

Table 7.14: Summary of Multiple Regressions QFRD and Sub-categories

	QFRD	RELV	RELB	COMP	UNDS
Adjusted R ²	0.469	0.213	0.097	0.390	0.381
Hypotheses					
H ₅	NS	NS	S	NS	NS
H ₆	NS	NS	NS	NS	NS
H ₇	NS	NS	NS	S*	NS
H ₈	S	S	NS	S	S
Control variables:					
LEV	NP	NP	NP	NP	NP
NAF	SP	NP	SP	SP	NP
PLF	SP	SP	NP	SP	SP
IND	SP	SP	NP	NP	SP
AUDTYPE	SP	NP	NP	SP*	NP

Legend: QFRD is Main Model 2; Relevance (RELV) is Main Model 2.1; Reliability (RELB) is Main Model 2.2; Comparability (COMP) is Main Model 2.3; Understandability (UNDS) is Main Model 2.4; S is Supported; NS is Not Supported; SP is Significant Predictor; NP is Not Significant Predictor; *only moderate statistical support ($0.05 \leq p \leq 0.10$).

Chapter Eight provides the summary, implications and conclusions for the thesis. Overall insights into EFRD and QFRD are further highlighted in this final chapter.

CHAPTER 8: FINANCIAL RATIO DISCLOSURES INSIGHTS: SUMMARY, IMPLICATIONS AND CONCLUSIONS

8.1 Thesis Objective

This thesis provides an important cross sectional evaluation of the *extent* and *quality* of financial ratio disclosures. The data source is the 2007 annual reports of 300 Australian listed firms. The 2007 annual reports are chosen because they represent the period after the introduction of the IFRS in Australia. The 300 sample firms are stratified randomly selected from four major industry classifications: Resources, Manufacturing, Services and Financials. The examination of the extent of financial ratio (EFRD) and its five key sub-categories is based on a comprehensive 43-item disclosure checklist weighing each equally. In addition, the quality of financial ratio disclosures (QFRD) and its four main sub-categories is proxied using a 12-item qualitative characteristics matrix, also equally weighted. This doctorate study investigates the patterns of the disclosure by examining four key factors: strength of corporate governance structure, level of capital management initiatives, ownership concentration and firm size. This final chapter reviews the main findings, hypotheses testing, implications and key conclusions.

8.2 Summary of Key Findings

It is suggested that the disclosure of financial ratios in annual reports potentially enhances corporate transparency, by assisting users' comprehension about corporate financial health. In addition, the communication of financial ratios would possibly help (especially non-sophisticated) users to understand the complex and technical financial terms. Provision of financial ratio data within annual reports is also believed to efficiently reduce the time and cost of obtaining information in comparison to other media (Watson

et al. 2002). As a consequence, these benefits will likely assist users in making informed investment decisions. In reflecting on the positive impacts of financial ratio disclosures, this thesis also investigates the determinants of the extent and quality of financial ratio disclosures.

This thesis evaluates the extent and quality of financial ratio disclosures within the 2007 annual reports of Australian listed firms. Four key research questions assess these disclosure attributes and relate them to firm specific variables comprising corporate governance structure, capital management exposure, ownership concentration, and firm characteristics. Research questions and the key findings are presented in Table 8.1, while Table 8.2 summarises the hypotheses testing.

Table 8.1: Key Research Questions and Findings

Research questions	Findings
<p>Main research question:</p> <p>Are corporate governance, capital management initiatives, ownership concentration and firm size explains the extent and quality of financial ratio disclosures in the annual reports of Australian listed companies?</p>	<ul style="list-style-type: none"> • Corporate governance does not influence EFRD and QFRD (Section 6.6.2 and 7.6.2). • Capital management initiatives do not influence EFRD and QFRD (Section 6.6.2 and 7.6.2). • Ownership concentration moderately influences EFRD but does not influence QFRD (Section 6.6.2 and 7.6.2). • Firm size highly and significantly influences both EFRD and QFRD (Section 6.6.2 and 7.6.2).
<p>Subsidiary questions:</p> <p>1. What is the extent of disclosure of financial ratio information in the annual reports of Australian listed companies?</p>	<ul style="list-style-type: none"> • The findings show the level of EFRD is low in absolute terms. On average, companies only provide 5.3% of the 43 financial ratios examined in this thesis (Section 6.3.1). • The results suggest that the <i>Share Market Measures</i>, <i>Capital Structure</i> and <i>Profitability</i> sub-categories are the most communicated categories of financial ratios presented by the sample firms in their annual reports (ranging from 7.4% to 9%). In contrast, <i>Liquidity</i> and <i>Cash Flow</i> ratios are the least provided in the annual reports with less than 1% disclosure levels (Section 6.3.1).
<p>2. What is the quality of disclosure of financial ratio information in the annual reports of Australian listed companies?</p>	<ul style="list-style-type: none"> • The findings show on average the level of QFRD is 37.8% (Section 7.3.1) • The <i>Reliability</i> sub-category has the highest score (54.6% mean), followed by <i>Understandability</i> (49.2%). <i>Comparability</i> 28% and <i>Relevance</i> 19.5% (Section 7.3.1).

Table 8.2: Summary of Hypotheses Testing

Subsidiary question	3. What are the significant predictors influencing the extent of financial ratio disclosures in the annual reports of Australian listed companies?	
Hypotheses		Findings
H1	<i>The extent of financial ratio disclosures is positively associated with a stronger corporate governance structure for Australian listed companies.</i>	Rejected (Table 6.12)
H2	<i>The extent of financial ratio disclosures is positively associated with higher capital management initiatives for Australian listed companies.</i>	Rejected (Table 6.12)
H3	<i>The extent of financial ratio disclosures is negatively associated with higher ownership concentration for Australian listed companies.</i>	Moderately Supported (Table 6.12)
H4	<i>The extent of financial ratio disclosures is positively associated with firm size for Australian listed companies.</i>	Highly Supported (Table 6.12)
Subsidiary question	4. What are the significant predictors influencing the quality of financial ratio disclosures in the annual reports of Australian listed companies?	
H5	<i>The quality of financial ratio disclosures is positively associated with a stronger corporate governance structure for Australian listed companies.</i>	Rejected (Table 7.12)
H6	<i>The quality of financial ratio disclosures is positively associated with higher capital management initiatives for Australian listed companies.</i>	Rejected (Table 7.12)
H7	<i>The quality of financial ratio disclosures is negatively associated with higher ownership concentration for Australian listed companies.</i>	Rejected (Table 7.12)
H8	<i>The quality of financial ratio disclosures is positively associated with firm size for Australian listed companies.</i>	Highly Supported (Table 7.12)

Legend: Hypothesis is rejected if $p\text{-value} > 0.10$; moderately supported if $0.05 \leq p\text{-value} \leq 0.10$; supported if $0.01 \leq p\text{-value} \leq 0.05$; and highly supported if $p\text{-value} < 0.01$ respectively.

In answering subsidiary research question 3, Hypotheses 1 to 4 are proposed and tested (see Section 2.4.1-2.4.4). These hypotheses investigate the association between EFRD and predictor variables:

corporate governance, capital management activities, ownership concentration and firm size. Statistical testing leads to a rejection of H₁ and H₂. These results imply that the corporate governance structure and the capital management activities do not have any significant influence on the decision by firm management to provide financial ratios in annual reports. However, H₃ and H₄ are supported (to varying degrees with more support for the firm size finding). Larger companies with more disperse shareholding communicate more *extensive* financial ratio information in their annual reports.

Furthermore, Hypotheses 5 to 8 are advanced to ascertain the relationship between the QFRD and the predictor variables (see Section 3.4.1-3.4.4). From Table 8.2, it can be concluded that corporate governance, capital management activities and ownership concentration are not significant determinants of QFRD (H₅, H₆ and H₇ are rejected). In contrast, the results suggest that larger firms are more likely to present better *quality* financial ratio information in their annual reports (H₈ is accepted).

8.3 Reflections on Extent of Financial Ratio Disclosures (EFRD)

There are several possible reasons that may account for the low absolute level (5.3%) of EFRD ratio disclosure (see Section 6.3.1). Firstly, firm management may feel that disclosure of financial ratio information in annual reports is not critical in meeting the information needs of shareholders. This argument is consistent with Mitchell (2006) who suggests that many ratios are possibly only important to certain user groups. This is quite surprising because if used properly, financial ratios can play a vital role in the communication process between companies and their stakeholders.

Chatterjee (2007) recommends companies should consider communicating key valuable information after finding evidence of divergence perceptions on the usefulness of information provided between the preparers and the users of annual reports.

Secondly, it could be argued that financial ratios could be calculated by anybody with some basic business knowledge. Professional financial analysts also could provide such information to the stakeholders through their review or analysis on firms' performance, or through their databases. Due to that reason, firms may become less interested in publishing financial ratio data in their annual reports. However, non-disclosure of financial ratios potentially incurs an additional cost to users, instead of having financial ratios communicated freely within the companies' annual reports. As argued by Watson *et al.* (2002), such additional voluntary disclosures will reduce the time and cost of obtaining information elsewhere. Further, not all stakeholders have a business background or access to the additional information provided by analysts.

Thirdly, this thesis develops a comprehensive financial ratio disclosures index to measure the EFRD. EFRD is calculated as the percentage of the total number of financial ratios disclosed to the total financial ratio index (43) for each sampled Australian listed company (refer Section 4.4.1). Thus, the use of a large number of individual items within the EFRD score probably contributes to a lower disclosure percentage (in effect, there are more opportunities to measure non-disclosure). In contrast, previous studies usually investigate a smaller number of ratios. For example Mitchell (2006) only analyses ten individual ratios categorised into five major categories; Morton and Harrison (2009) investigate the ratio disclosure based on number of pages taken up; Watson *et al.*

(2002) broadly study five major categories (without mentioning specific ratios); Courtis (1996) examines 24 specific ratios whereas Williamson (1984) investigates only 11 ratios. The position in this thesis is that a more extensively designed proxy measure with a larger number of items better represents the construct of financial ratio communication.

There is disagreement in the literature about the extent that stakeholders, in particular potential investors, rely on the financial ratio information before they make any investment decision. Even if financial ratios are provided in the annual reports and prospectus of firms, it is difficult to ascertain how extensively they use that information. Arguably, this more extensive communication may help investors' comprehension, form awareness about a company's financial health, and assist in investment decision making.

Overall, these thesis findings reveal that managements' decision is to communicate financial ratios at a very minimum level in the annual reports. This may be due to the perceived trivial benefit that financial ratio analysis could offer with the assumption that ratio-related information is somewhere else.

8.4 Reflections on EFRD Sub-categories Differences

There are five key sub-categories of EFRD, including *Share Market Measures*, *Profitability*, *Capital Structure*, *Liquidity* and *Cash Flow*. The thesis findings highlight that the *Share Market Measures* (9%), *Capital Structure* (7.9%) and *Profitability* (7.4%) sub-categories are the most popular categories of ratio communicated in the annual reports. In contrast, only 0.9% of *Liquidity* and 0.2% of *Cash Flow* sub-categories are reported (see Section 6.3.1). The *Share Market Measures* sub-category consists of eleven ratios that

related to the share market environment. Most of the ratios under this category utilise share market information such as share price and number of shares issued. The *Capital Structure* sub-category consists of eight ratios dealing with sources of capital such as debt and equity of the firms. The *Profitability* sub-category represents the nine ratios that measure the level of profitability of the firms. It focuses on the revenues and profit level in this sub-category (refer Table 6.2).

One possible reason for the slightly higher disclosure levels (7.4%-9.0%) in these first three categories may more directly benefit stakeholders. These categories of ratios portray the performance of the firm and how efficient the firm is in managing their sources of capital. These are important and useful elements in making investment and evaluation decisions. This is in line with the Cook and Sutton (1995) argument that annual reports of companies should provide information which fulfils the needs of the stakeholders. In order to overcome the problems of information overload, companies can briefly and clearly provide vital information such as key financial ratios. Provision of such information will therefore increase the usefulness and importance of annual reports in communicating company information to stakeholders.

Furthermore, these three popular categories are the most frequently covered in the financial statements analysis courses in Australian universities (Morton and Harrison 2008)²⁸. This implies that business and accounting students, the most likely future

²⁸ Morton and Harrison (2008) conclude that Australian universities focus less on cash flow ratio education than other countries. Further, Al-Ajmi (2008) suggests the typical university course content is inadequate in that it usually only requires students to analyse the balance sheet and income statements in determining financial ratios, whilst focussing less on any cash-flow based ratios.

preparers of the companies' annual reports, are most familiar with these specific categories of financial ratios. A similar situation may also apply to sophisticated users such as professional chartered accountants, investors and accounting teachers as suggested by Joshi and Abdulla (1994). It appears that liquidity and cash flow ratios are less appreciated.

These three ratio categories have also been ranked as important ratios, either by the users or the preparers in previous studies. Whereas from the users' point of view, Al-Ajmi (2008) finds that both credit analysts and financial analysts rank cash flows based ratios lower than non-cash-based ratios. It appears that investors perceive the information in the cash flow statement is less important in comparison with the balance sheet and the income statement. In a different setting, Hsieh and Wang (2001) suggest four critical categories of financial ratios including financial structure, solvency, profitability and operating ability.

In addition, Ramsay and Sidhu (1998) and Cotter (1998) note that leverage and interest cover are the most commonly used covenant ratios in public and private debt contracts. Hence, maintaining and communicating these ratios is important in ensuring companies continuously meet contractual arrangements. These ratios have higher communication levels in the annual reports, as firm management may believe that these ratios are important to specific shareholders such as financial intermediaries.

These thesis findings are mostly consistent with the previous studies. For example, Watson *et al.* (2002) conclude that investment ratios are usually reported in annual reports closely followed by gearing and profitability ratios. Their argument is that such information is directly related to and relevant to the

shareholders. Mitchell (2006) suggests that the companies feel that the communication of share market measures and the profitability ratios are vital for the stakeholders. Courtis (1996) studies the annual reports of all listed companies in Hong Kong and states that the lower incidence of financial ratios is probably due to the fact that the companies do not think this is important information and are possibly influenced by an overall lower level of overall voluntary disclosure in Hong Kong.

In summary, it can be concluded that the level of financial ratio disclosures in Australian annual reports is low. The level of disclosure varies among individual ratio categories.

8.5 Reflections on Quality of Financial Ratio Disclosures (QFRD)

As shown in Table 7.1, on average, sample firms satisfy 37.8% of the qualitative characteristics of financial ratios. This result demonstrates companies' effort to provide better quality information to enhance stakeholders' comprehension about companies' performance through financial ratios. Communicating higher quality information is consistent with Australian government initiatives to attract potential foreign investors to invest in Australian businesses (Department of Foreign Affairs and Trade Australia 2008).

The QFRD is proxied using four key sub-categories of qualitative characteristics suggested by the IASB/ AASB. They are *Relevance*, *Reliability*, *Comparability* and *Understandability*. The finding suggests the highest score of 54.6% are for *Reliability* characteristics (see Table 7.2). This sub-category encompasses the general quality of financial statements in term of faithful

representativeness, financial expertise and verifiability of the financial statements. One possible reason why the disclosure level for this element is higher may be the introduction of CLERP 9 in 2004. This regulatory initiative emphasises continuous disclosure; where companies are pressured to strengthen their financial reporting transparency practices. Overall, these elements would encourage the communication of more reliable information in the companies' annual reports.

Further, financial ratios communicated by sample firms satisfy 49.2% of *Understandability* attributes (as highlighted in Table 7.2). On average, almost half of sample firms locate the financial ratios within the key sections of annual reports, use graphic support and/or provide further clarification on financial ratios. An explanation is that companies are assisting investors to better comprehend complex financial data. Non-sophisticated investors are potentially confused and overwhelmed by many features of the annual report, unable to understand its intricacies and technical jargon, and may be incapable to use and absorb all the information contained in the annual reports (Cook and Sutton 1995). Companies communicating understandable financial ratios not only assist stakeholders understanding, but at the same time reduce the cost of disseminating information. Thus, companies' annual reports should be an effective communication platform that conveys understandable key information, such as financial ratios. For instance, Frownfelter-Lohrke and Fulkerson (2001) suggest that relatively low-cost graphical presentation of financial information can enrich companies' annual reports.

The third qualitative characteristic is *Comparability* which is attained by 28% of the sample firms (refer Table 7.2). A possible reason for this level of quality is that companies may be concerned

about the proprietary nature of some information. Such firms may not be ready to share key information that they feel may disadvantage them with their competitors.

Finally, companies are communicating a lower level (19.5%) of *relevant* financial ratios measured as timeliness of the annual reports; and the usage of ratios as a confirmation and prediction tool. One possible explanation is that companies underestimate the benefits that financial ratio analysis could offer. Financial ratio analysis not only provides absolute values, but at the same time it can be used as confirmation or prediction tools. These techniques potentially generate further insights into firms' financial condition.

Overall, providing quality information to stakeholders is in line with CLERP 9's aim to enhance the financial reporting framework. According to Brown and Tarca (2005), the introduction of CLERP 9 impacts financial reporting by requiring more detailed information in relation to the review of operations and financial position in the director's report, which should cover operations, financial position, business strategies and prospects for the future. Thus, more disclosure is expected and one potential efficient and effective approach is by utilising financial ratio analysis. CLERP 9 also arguably increases the quality of financial reporting by requiring the CEO and CFO to sign a declaration that the financial records have been properly maintained, the financial statements have been prepared in accordance with accounting standards and that they present a true and fair view of the company's operations (Brown and Tarca 2005).

8.6 Statistical Determinants of EFRD and QFRD

This section provides an explanation of the association between EFRD and QFRD with all the variables under investigation. Univariate tests (including t-tests and ANOVA) are carried out (refer Section 6.4 and 7.4). Correlations analyses are also conducted to further investigate the relationship between all variables (see Section 6.5 and 7.5). Finally, Ordinary Least Square (OLS) multiple regression analysis is utilised to examine the significant predictors and test the eight hypotheses (Section 6.6 and 7.6).

8.6.1 Reflections on Corporate Governance Structure: EFRD and QFRD

Correlation analysis shows that corporate governance is positively correlated with EFRD and also with QFRD (see Table 6.11 and 7.11). These results imply that the stronger the corporate governance structure, the higher the level of EFRD and QFRD.

There is a positive and non-statistically significant association between the strength of corporate governance structure and the EFRD, as well as the QFRD based on OLS regression result (refer Table 6.12 and 7.12). This finding suggests the corporate governance structure is not an important predictor in determining the provision of financial ratio disclosures in the annual reports.

Conventional wisdom may expect companies with good corporate governance to perform better, but the empirical evidence is mixed. For example, Ho *et al.* (2008) find that the corporate governance structure is not statistically significant in determining the level of voluntary disclosure before the 1997 economic crisis in Malaysia, but show evidence of a positive and significant association after

the crisis. Similarly, Taylor *et al.* (2008) examine the effect of corporate governance on Australian resource companies' financial instrument disclosure practices. Their result suggests a positive association between corporate governance and the extent of financial instrument disclosure.

Several studies however note evidence of a negative association between corporate governance and voluntary disclosure. For example, Gul and Leung (2004) state that increased monitoring by independent and experienced outside directors results in a lower level of voluntary disclosure. Coulton *et al.* (2001) conclude that corporate governance is either ineffective, or does not influence compensation disclosure. Ho and Wong (2001) feel that a negative result implies that independent directors are more concerned with compliance of mandatory disclosure as compared to voluntary disclosure. Linden and Matolcsy (2004) argue that a best single practice might not be relevant for all companies. The finding of an inverse relationship between corporate governance structure and the financial ratio disclosures practices may be due to the type of disclosure studied. An inverse or non-influential result can be considered surprising because it implies that this predictor is not efficient in encouraging management to communicate financial ratios in their annual reports. The decision whether to communicate financial ratios in the annual report might be discussed at a more internalised level of management such as the company's accountant and the company's secretary, instead of at the board of directors or audit committee level. It is also possible that this thesis measure of composite corporate governance structure is possibly not efficient or sufficient enough in determining the level and quality of financial ratio disclosures.

8.6.2 Reflections on Capital Management Initiatives: EFRD and QFRD

In addition to corporate governance, capital management initiatives potentially influence the level of financial ratio disclosures within firms' annual reports. The concept of Capital Management (CM) incorporates capital raising, takeovers and mergers, overseas listings and international operations activities. The findings of this thesis suggest a positive yet not statistically significant association between the capital management initiatives and the EFRD (see Table 6.12), and negative association with QFRD (refer Table 7.12). It seems that whether or not firms engage in capital management activities does not influence the communication of financial ratios in their annual reports.

There are several studies linking capital management activities with financial reporting practices. Collett and Hrasky (2005) find firms with multiple stock exchange listings are more inclined to make voluntary corporate governance disclosures. Ahmed *et al.* (2006) state that Australian firms listed on the German stock exchange have lesser impacts on their returns relative to Anglo-Saxon stock exchanges. Further, Saudagaran and Biddle (1992) argue that a foreign listing decision appears positively related to the disclosure level of a firm's domicile. Doidge *et al.* (2004) suggest potential benefits of cross-listings including information disclosure, where they argue that the U. S. capital markets require more disclosure than the listing firms' domicile. This is may be due to differing listing procedures on international stock exchanges which may have lower or higher regulatory and disclosure requirements.

One possible reason why capital management activities are not directly associated with the communication of financial ratio disclosures is that firms involved with overseas listings and

international operations may be far more concerned with mandatory requirements compared to voluntary disclosure. It is important for them to comply with foreign rules and regulations. In addition, firms engaging in takeovers and mergers, (especially the target firm) may be reluctant to provide financial ratios because it may portray their unfavourable performance. Finally, firms engaging with capital raising activities may be more concerned with related procedures such as prospectus and agreement preparation compared to financial ratio disclosures within annual reports.

8.6.3 Reflections on Ownership Concentration: EFRD and QFRD

Ownership concentration is another hypothesised variable tested in this doctorate to examine the level of EFRD and QFRD. The statistical results reveal that there is a negative and moderate association between the ownership concentration and the EFRD (see Table 6.12). This thesis conclusion is largely consistent with prior studies including McKinnon and Dalimunthe (1993) in Australia, Hossain *et al.* (1994) in Malaysia, Lakhali (2005) in France and Oliveira *et al.* (2006) in Portugal. In contrast, the data shows that there is a negative yet not statistically significant association between ownership concentration and the QFRD (refer Table 7.12). It appears the company with dispersed shareholding mitigates agency problems through voluntary disclosure of financial ratios, but not the quality elements of the disclosure.

There are several possible explanations for this situation. The Top 20 shareholders seem to have power to influence companies to disclose financial ratio in their annual reports because the percentage of their shareholding are quite significant (about 65% in this case, see Table 5.1), but not strong enough to encourage

higher quality of reporting. They are not using quality reporting to reduce the likelihood of agency conflicts. In addition, the ASX in their 2006 Australian share ownership study notes the following trends: Australian shareholders owning more overseas shares, increasing the number of companies held in a portfolio, having a more mixed set of large and small companies in their portfolio and increasing the number of shares bought and sold in 2006 compared to previous years. Being more actively involved in share market possibly motivates them to seek important and relevant information such as financial ratios in making informed investment decisions. However, 'quality' characteristics of such information appear less linked.

8.6.4 Reflections on Firm Size: EFRD and QFRD

Firm size is the statistically strongest variable that influences the EFRD and QFRD. Firm size is found positively and significantly correlated with EFRD (refer Table 6.11) and QFRD (refer Table 7.11). In the regression analysis, firm size also has a positive and a highly statistical significant association with EFRD (see Table 6.12) and QFRD (see Table 7.12). This result is consistent with previous studies such as Ho and Wong (2001), Watson *et al.* (2002), Gul and Leung (2004), Wallace *et al.* (1994), Hossain *et al.* (1994) and Singhvi and Desai (1971), who find firm size is a significant predictor for increased communication.

There are several possible reasons to explain these results. Higher political visibility as argued by agency theory may be one reason that larger companies provide more and higher quality financial ratios in their annual reports. In addition, larger firms appear to have higher agency costs, and by providing financial ratios in their annual reports, these firms could possibly lower their agency

problems. Another possible reason is that larger firms normally have better disclosure practices overall because they have lower economies of scale in accumulating information. Larger firms may provide more and higher quality financial ratios because they need more financing. By providing more relevant, reliable, comparable and understandable information, they could attract more external funds at a lower cost.

8.6.5 Reflections on Control Variables: EFRD and QFRD

In order to ascertain the effect of other variables in determining the level of EFRD and QFRD, several control variables are employed in this study. Leverage (LEV) is measured as the ratio of debt to total assets. OLS regression results indicate that leverage does not influence the incentive of companies to provide financial ratios in their annual reports and its quality (see Table 6.12 and 7.12). It is likely that Australian listed companies disseminate debt-style ratio data directly to current and potential financial institutions via special reports. Therefore, they may not feel the need for extra ratio disclosure in the general purpose annual report.

Non-audit fees (NAF) measures the independence of a company's auditor by analysing the link between providing audit services and non-audit services. Both regression results indicate that the more independent the auditor, the more financial ratios with higher quality are provided in the annual reports (see Table 6.12 and 7.12). Having more independent auditors possibly would improve the credibility of financial information disclosed to the stakeholders.

Auditor type (AUDTYPE)²⁹ is classified as Big4 and Non-Big4 audit firms. Both univariate (refer Tables 6.3 and 7.3) and multivariate (see Tables 6.12 and 7.12) tests reveal that companies audited by Big4 audit firms provide more and better quality of financial ratios. This finding is consistent with Francis *et al.*'s (1999) argument of the (then) Big 6 firms' good reputations which are assumed to provide higher quality audits than the other auditors. The choice of a Big4 auditor serves as a monitoring mechanism, where they are intended for detecting material departures from generally accepted accounting principles. It is believed that Big4 auditors have greater ability to provide more and better quality financial ratios because they are more aware of the reputational benefits and usefulness of these ratios.

The Profit/Loss firms (PLF) variable is a significant predictor for both univariate (see Tables 6.3 and 7.3) and multivariate (refer Tables 6.12 and 7.12) analysis for EFRD and QFRD. Profit firms provide more and better quality financial ratios in their annual reports. This may be because they want to show that they performed well and want to attract potential investors in order to gain additional capital. Profit firms also could be associated with higher political visibility as suggested by agency theory. The result is consistent with a study conducted by Labelle (2002) who argues that firms with good performance are more likely to invest in quality disclosure. The argument is that profit making firms are better placed to provide resources in ensuring more extensive and better quality financial ratio disclosures.

This thesis finding is also consistent with Curtis (2004) on the usage of colour in the annual reports. He provides evidence that

²⁹ AUDTYPE is further classified into AUDNAME, which specifically labelled the auditors according to their name (KPMG, EY, DT, PWC and Others). The related univariate result is consistent with AUDTYPE statistical analysis.

during their prosperity period, management would use more colour to portray an enhanced impression of its success. On the other hand, management will seek to lower its usage of colour due to cost constraints during financially difficult times.

The final control variable included in this study is industry (IND) category. The sample companies are classified into four³⁰ major industry category including Resources, Manufacturing, Services and Financials. Univariate tests show significant differences between industries in determining EFRD (see Table 6.8) and QFRD (refer Table 7.8). However, multivariate analysis shows these are not statistically different for EFRD model (see Table 6.12), but positively and highly significant for QFRD (refer Table 7.12). The analysis shows that Financials and Services sectors are providing more financial ratios as compared to Resources sector (see Table 6.9). Financials sector is also providing better QFRD in comparison with the other three industry sectors (refer Table 7.9).

8.7 Implications

This section discusses the implications of the key thesis findings and the linkage with agency theory. Understanding why companies voluntarily communicate financial ratios in their annual reports is potentially useful for preparers and users of such information. In addition, policy makers and regulatory bodies may play vital roles in enhancing the communication of financial ratios by Australian listed companies.

Financial report preparers, especially smaller and non-profit making firms with concentrated ownership, must match their financial ratio communication practices with their counterparts. They are at a

³⁰ Further analysis is conducted by classifying IND into six categories and the result is consistent (See Appendix F)

disadvantage if they are not able to better explain the unfavourable profitability performance to their stakeholders from the perspective of capital structure, liquidity and cash flow conditions. In order to be successful in competing for more capital at lower costs, they should consider inculcating the reporting strategies adopted by larger and profitable firms.

In addition, in line with Australian government initiatives in promoting Australia as a promising business destination (Department of Foreign Affairs and Trade Australia 2008), companies should communicate important information like financial ratios in their annual report to attract domestic and foreign investors. This thesis finding suggests Australian firms underutilise financial ratio analysis properties. Hence, they should take further steps to improve the communication of financial ratios to reduce the costs of obtaining information. This in turn may reward companies with more foreign investment and lower capital costs.

For users, the inclusion of financial ratio data communication in the annual reports is useful for financial statement analysis. Users may reward companies that include more extensive and higher qualitative characteristics of financial ratio provided via annual reports. Financial ratio information should be relevant, reliable, understandable and comparable. Larger and profit firms communicate more financial ratios. A better understanding of these reporting patterns would be useful for them to make informed investment decisions.

These thesis findings also generate useful information for oversight bodies such as the Australian Stock Exchange (ASX) and Australian Securities and Investment Commission (ASIC) on the deficiencies of critical and relevant financial ratio data as they formulate policy

and regulation. They can especially target liquidity and cash flow ratios as well as the relevance quality characteristics. Arguably, these elements are desirable and may need more regulatory attention. The introduction of the basic set of practice guidelines (similar to the ASX 2003 Corporate Governance guidelines) may enhance the consistency and comparability of Australian listed companies and will better assist and protect investors by encouraging more extensive and higher quality communication.

The findings also reinforce the role of financial disclosures as a means of reducing information asymmetry. Thus, it could have implications for the IASB and AASB, as it suggests that mandatory disclosure of a comprehensive set of financial ratios would possibly improve the efficiency of the markets by reducing agency costs. Annual reports would be more useful if standard financial ratios are required to be disclosed. All listed companies could report the same core ratios and every key industry could have their own unique additions.

Further, if ratios inaccurately portray the financial status of publicly listed companies, the IASB and AASB may wish to consider guidelines and/ or standards for graphics or other alternate presentation formats in Australian financial reporting. These guidelines would enable investors and other interested parties to better rely on financial ratios as accurate summary measures. In addition, such guidelines would assist auditors and regulators in their review of financial information and, in a litigious society, might ward off potential litigation.

A further policy implication is that more effort may be needed to ensure corporate governance is successful in monitoring management incentives on behalf of the stakeholders. The role of

corporate governance as an agency problem alleviating mechanism is crucial in reducing information asymmetry and agency costs. From the auditor perspective, it seems the Big4 and more independent auditors' clients better utilise financial ratio properties in communicating their financial performance. The auditing standards might need to be enhanced to encourage smaller audit firms to provide better audit quality; this could lead to companies communicating better reporting quality.

8.8 Future Research Suggestions

This doctorate uses the 2007 annual reports in determining the level of EFRD and QFRD. Yet by the end of 2008, most of the countries worldwide were badly affected by the global financial crisis. Future research could utilise 'post financial crisis' annual reports in gathering the data and a comparison may be conducted to ascertain whether the financial crisis does link to the financial ratio disclosures decision. Time series data also might provide additional insights on the changes of disclosure practices over different economic cycles. The annual report is not the only medium for companies to communicate important information. Continuous disclosure including internet reporting and press releases might be used as a platform to communicate financial ratios; more research is needed for these reporting mediums.

In addition, an international comparison between regions and countries could generate important insights. The comparison would be meaningful especially if comparisons are made between countries that are adopting IFRSs in preparing their financial statements. This is important because financial ratios are calculated based on these financial statements elements.

Given the overall explanatory power of the models are not high with a maximum R^2 of 47.8% (refer to Table 6.14 and Table 7.14), both researchers and regulators could explore other possible drivers in determining the extent and quality of financial ratio disclosures.

Finally, consideration should be given to incorporating other ratios within the EFRD and possibly using different weights for each element. Further, the innovation of creating a quality-based QFRD matrix of qualitative characteristics based on the IASB and AASB frameworks whilst potentially useful is acknowledged as a preliminary and initial effort. There is very limited research about adopting such frameworks in measuring the quality of disclosure. Thus, future research is needed regarding the measurement of the QFRD and other possible 'quality matrices' that might be developed. Further, if the joint IASB and FASB Exposure Draft is adopted in the future, there is potential for a new combination of the QFRD matrix since these bodies proposed differing structures of qualitative characteristics.

8.9 Concluding Remarks

This thesis sheds light on the financial reporting practices of Australian listed firms. Specifically, this study provides empirical evidence on the extent and quality of financial ratio disclosures within listed companies' annual reports. Despite the usefulness of financial ratio analysis for decision making, it appears that Australian listed companies are mostly ignoring this powerful tool. Whilst, it is thought that agency theory mechanisms such as corporate governance structure, capital management initiatives and the power of concentrated shareholders should reduce agency

problems, the empirical findings in this thesis provide little support for these premises.

The findings from this research are potentially important for government agencies, regulatory bodies, professional accounting bodies, listed companies and business communities including shareholders and broad stakeholder groups. The outcomes also provide an important platform for further debate and research regarding voluntary disclosure policies.

In addition, the existence of the Conceptual Framework by the IASB and AASB should be more fully utilised. These valuable framework documents should be regarded as vitally important guidelines for the preparers of financial statements to ensure that users are provided with quality information. Thus, the elements of *relevance, reliability, comparability* and *understandability* should be more inculcated into accounting research as well as Australian listed companies' financial reporting communication practices. More extensive and higher quality dissemination of disclosure items (such as financial ratios) would provide greater transparency for all stakeholder groups.

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APPENDICES

Appendix A: Selected Financial Ratio Studies

Study	Country	Disclosure source	DV	Findings
Morton and Harrison (2009)	Australia	<ul style="list-style-type: none"> 96 annual reports of 2004 and 93 annual reports of 2005 	LogRatioDisclosure (LOGRD) = log of total proportion of a page taken up by the each ratio disclosure.	<ul style="list-style-type: none"> On average, ratio is disclosed similarly for both years (about 70% of a page) or logged 20% of a page Correlation : profitability, leverage, independent board and size are correlated Regression: profitability, board independence and size positively and significantly related
Mitchell (2006)	Australia	528 annual reports of 1990/1991	10 ratios classified into 5 categories: <ol style="list-style-type: none"> Share Market Measures Profitability Capital Structure Liquidity Other 	<ul style="list-style-type: none"> The Share Market Measures (NTAB and EPS), Profitability (ROE) and gearing (D/E) most reported Selective reporting where companies disclose ratios that significantly higher than their non-reporting (NTAB, EPS, ROE and D/E ratios) Regression: Leverage, Number of analysts, ROE industry, Top 20 are significant predictors. Also EVol and Mkt/Bk.
Cinca et al. (2004)	11 European countries	Bank in BACH Database for 14 years (1986-1999)	15 financial ratios	<ul style="list-style-type: none"> Financial ratios are related to the size of the firms, but vary between countries.
Watson et al. (2002)	UK	313 annual reports for 1989-1993 of Top 1000 list	Dichotomous measure (disclosure or non-disclosure) of at least one ratio in the whole annual report. Five categories: <ol style="list-style-type: none"> Investment Profit Efficiency Gearing Liquidity 	<ul style="list-style-type: none"> Investment, gearing and profitability ratio most popular Industry (media and utilities less likely), size and firm performance hold for certain years only.
Courtis (1996)	Hong Kong	101 annual reports for 1988-1992	Financial ratio disclosure component (numerator-denominator) consistency	<ul style="list-style-type: none"> Inconsistent components and between companies, industries and years Consistent within companies across time

Appendix B: Specific Ratios and Formulas

Appendix B lists 43 individual ratios (with formulas) investigate in this thesis. There are five sub-categories of ratios. Table B1 provides 11 ratios for *Share Market Measures* sub-category and followed by Table B2 consisting 9 ratios of *Profitability* sub-category. Table B3-B5 provide list of *Capital Structure* (7 ratios), *Liquidity* (7 ratios) and *Cash Flow* (9 ratios) sub-categories respectively.

Table B1: Specific Ratios for *Share Market Measures* Sub-category

Categories	Ratios	Formulas
Share market measures	1. Book value per ordinary share	Total ordinary shareholders' equity/ number of ordinary shares issued
	2. Dividend payout*	1.Cash dividends paid per share/Earnings per share 2.Total dividends to ordinary shareholders/ (Profit-preferred share dividend) 3. Cash dividends paid/ Cash flow from operations
	3. Dividend yield	Cash dividends per share/ Market price per ordinary share
	4. Earnings yield	Earnings per ordinary share/Market price per ordinary share
	5. Market capitalisation	No. of common shares outstanding x market price per share
	6. Market-to-book value	Market capitalisation/ Common shareholders' equity
	7. Net assets backing per share	Net assets/ number of ordinary shares issued
	8. Net tangible assets backing per share	Net tangible assets/ number of ordinary shares issued
	9. Price-to-book ratio*	1.Market price per share/ Book value per share 2.Share price/ Net tangible assets backing per share 3.Market price per share/ Book value per share
	10. Price-to-earnings ratio	Market price per ordinary share/ EPS
	11. Total shareholders return	Ending share price-beginning share price + dividends / beginning share price

*Any of these formula derivations are allowed and counted in this thesis as a fully disclosed item.

Table B2: Specific Ratios for *Profitability* Sub-category

Categories	Ratios	Formulas
Profitability	1. EBITDA revenue	Earnings before interest, tax, depreciation & amortisation/ revenue
	2. Expense revenue	Non-interest expenses/ total revenue
	3. Gross profit margin*	1.Sales-cost of sales/ Sales 2. Sales-cost of sales/ Net sales
	4. Net profit margin*	1.Net income/Sales 2.Net income/ Revenue 3. Net profit/ Net sales
	5. Pre-tax profit margin	Income before income taxes/ Sales
	6. Return on assets*	1.Profit before interest and tax/Average total assets 2. Profit before interest and tax + MI in earnings/ Average total assets 3.Net income/ Average total assets
	7. Return on equity*	1.Net income/ Average shareholders' equity 2.Net profit-Preferred dividend/ Average ordinary shareholders' equity
	8. Return on sales	Profit before tax and interest/ Sales
	9. Sales turnover	Sales/ Average total assets

*Any of these formula derivations are allowed and counted in this thesis as a fully disclosed item. Note: The EPS financial ratio is not a voluntary disclosure (it is mandated under AASB 133) and is not included in the EFRD calculation.

Table B3: Specific Ratios for *Capital Structure* Sub-category

Categories	Ratios	Formulas
Capital Structure	1. Capitalisation ratio*	1.Total assets/ Total equity 2.Average total assets/ Average common shareholders' equity
	2. Equity ratio	Total equity/ Total assets
	3. Gearing*	1. Net debt/ (net debt + equity) 2. Average total liabilities/ Average total shareholders' equity
	4. Liabilities to assets ratio (debt ratio)*	1. Total liabilities/ Total assets 2. Interest bearing liabilities/Total assets 3. Average total liabilities/ Average total assets
	5. Long term debt to equity ratio*	1. Long term liabilities/ Shareholders' equity 2.Average Long term liabilities/ Average shareholders' equity
	6. Times interest earned*	1.Income before tax + interest/ Interest expense 2.Net income + interest expense + income tax expense + MI in earnings/ Interest expense
	7. Total debt to equity	Total liabilities/ Shareholders' equity

*Any of these formula derivations are allowed and counted in this thesis as a fully disclosed item.

Table B4: Specific Ratios for *Liquidity* Sub-category

Categories	Ratios	Formulas
Liquidity	1. Accounts receivable turnover*	1. Sales/ Average accounts receivable 2. Net credit sales/ Average net accounts receivable 3. Net sales revenue/ Average accounts receivable balance 4. Gross debtors/ Average daily sales
	2. Collection period*	1. (Average accounts receivables/ Sales) x 360 2. Average net accounts receivable/ One day's sales 3. (Average accounts receivable balance x 365)/ Net sales revenue 4. (Average debtors x 365)/ Net credit sales 5. 365/ Accounts receivable turnover
	3. Current ratio	Current assets/ Current liabilities
	4 Days to sell inventory*	1. (Average inventory/ Cost of sales) x 360 2. 365/ Inventory turnover
	5. Inventory turnover	COGS/ Average inventory
	6. Payment period*	1. Average accounts payable/ Net credit purchases 2. 365/ Accounts payable turnover
	7. Quick ratio*	1. (Cash + Cash equivalent + Marketable securities + Accounts receivable)/ Current liabilities 2. (Cash assets + Receivables)/ Current liabilities 3. (Current assets - prepayments)/(Current liabilities - bank overdraft) 4. Quick assets/ Current liabilities 5. (Current assets- inventory)/ (Current liabilities)

*Any of these formula derivations are allowed and counted in this thesis as a fully disclosed item.

Table B5: Specific Ratios for *Cash Flow* Sub-category

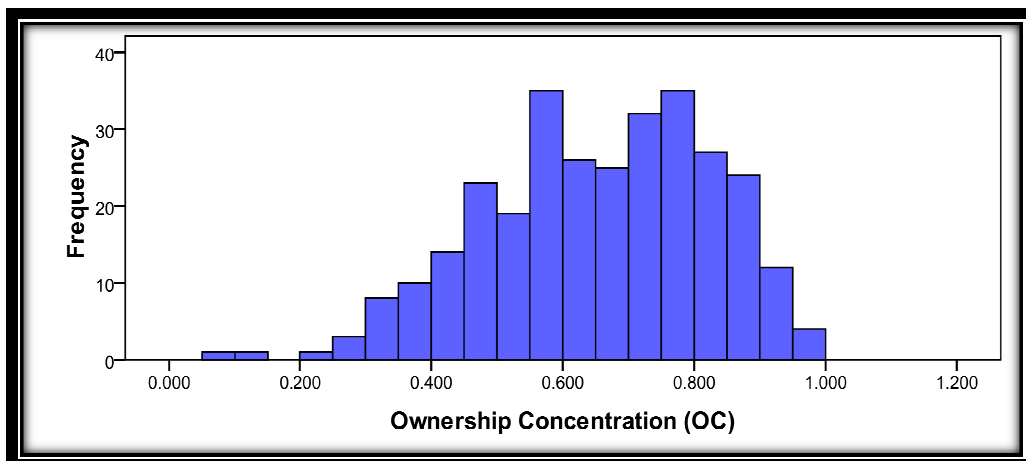
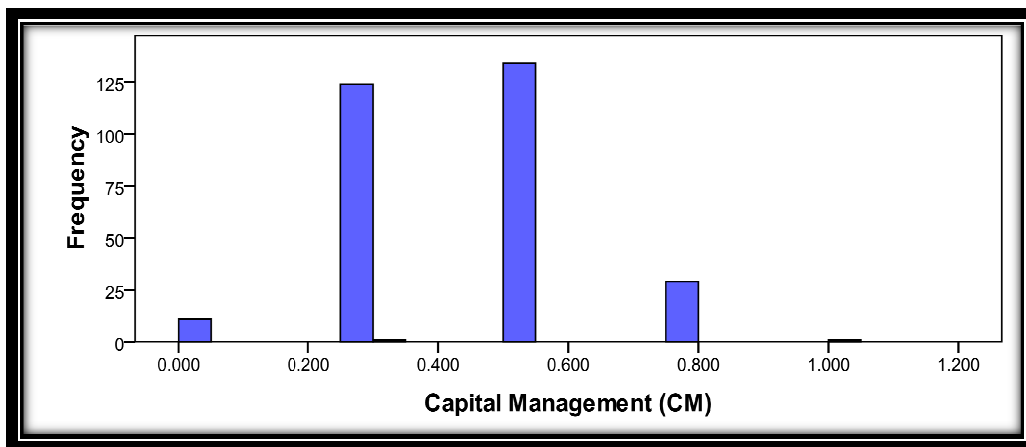
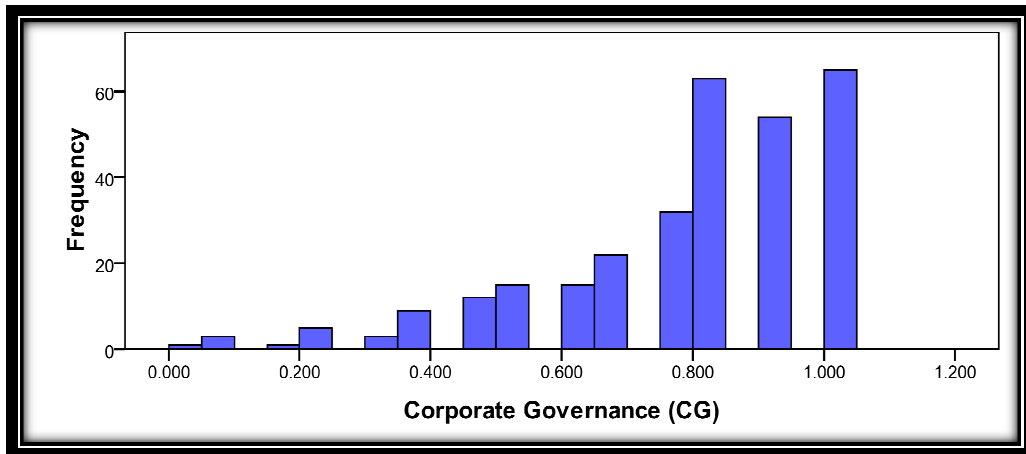
Categories	Ratios	Formulas
Cash Flow	1. Cash flow adequacy	$\text{CFO} / (\text{Fixed assets purchased} + \text{LT debt paid} + \text{dividend paid})$
	2. Cash flow ratio	$\text{CFO} / \text{Average current liabilities}$
	3. Cash flow return on assets*	1. $(\text{CFO} + \text{income tax paid} + \text{interest paid}) / \text{Average total assets}$ 2. $\text{CFO} / \text{Average total assets}$
	4. Cash flow to revenue	$\text{CFO} / \text{Revenues}$
	5. Debt coverage	$\text{Non-current liabilities} / \text{CFO}$
	6. Dividend payment ratio	$\text{Div paid} / \text{CFO}$
	7. Operation index ratio	$\text{CFO} / \text{Profit}$
	8. Reinvestment ratio	$\text{Fixed assets purchased} / \text{CFO}$
	9. Repayment of long term borrowings ratio	$\text{Repayment of LT borrowings} / \text{CFO}$

*Any of these formula derivations are allowed and counted in this thesis as a fully disclosed item.

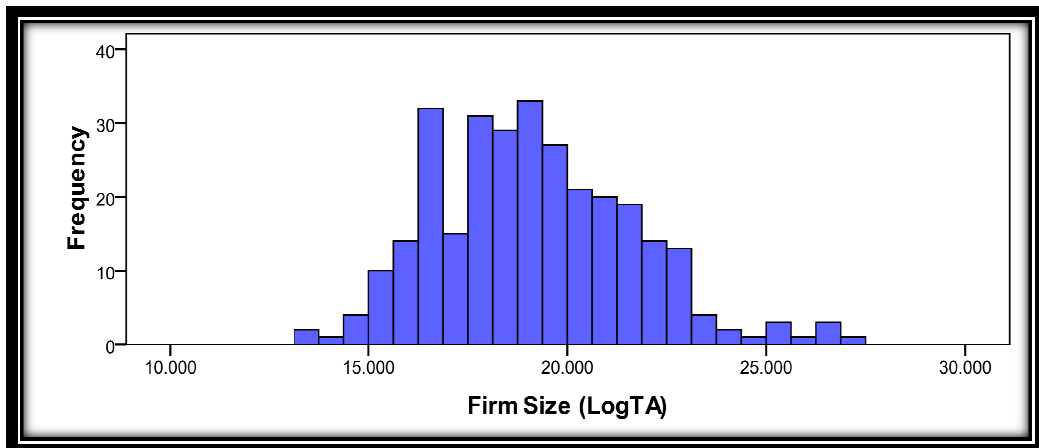
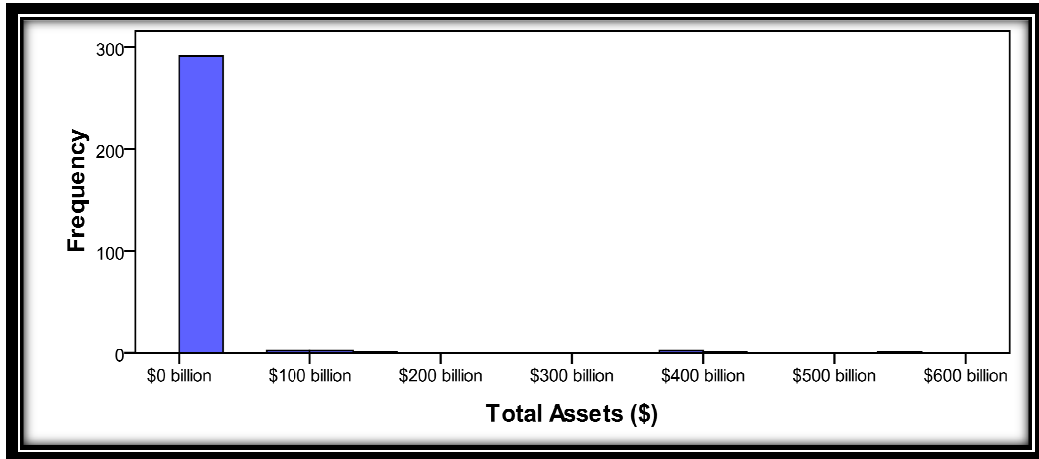
Overall, the communication of these ratios in Australian listed companies' annual reports is considered in determining the extent of financial ratio disclosures (EFRD).

Appendix C: Histograms for Independent Variables

Appendix C provides the histograms for independent variables utilised in this thesis. They are: Corporate Governance (CG), Capital Management (CM), Ownership Concentration (OC) and Firm Size (FSIZE). Firm size is measured as total assets and then transformed into natural log.



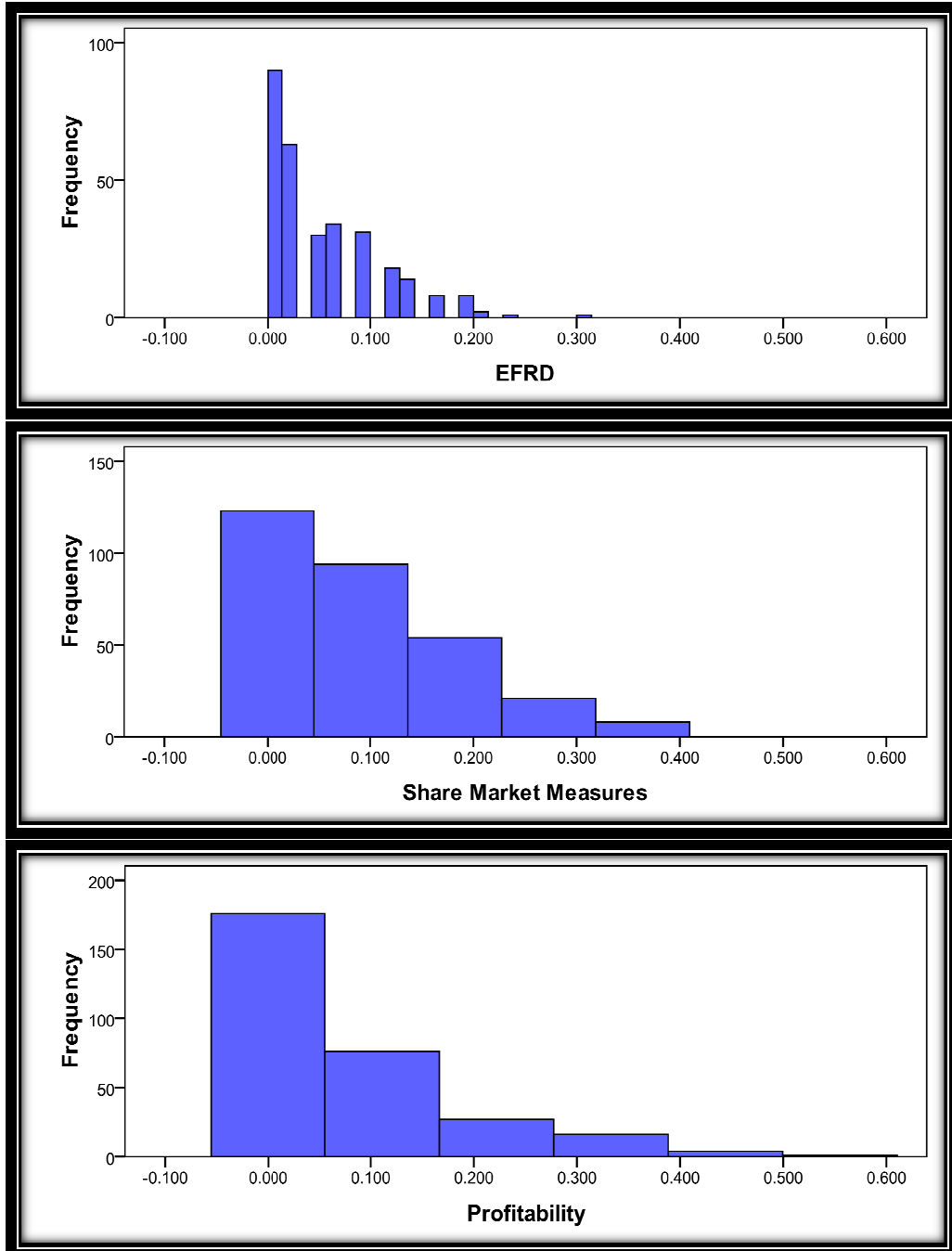
Appendix C: Histograms for Independent Variables (continued)



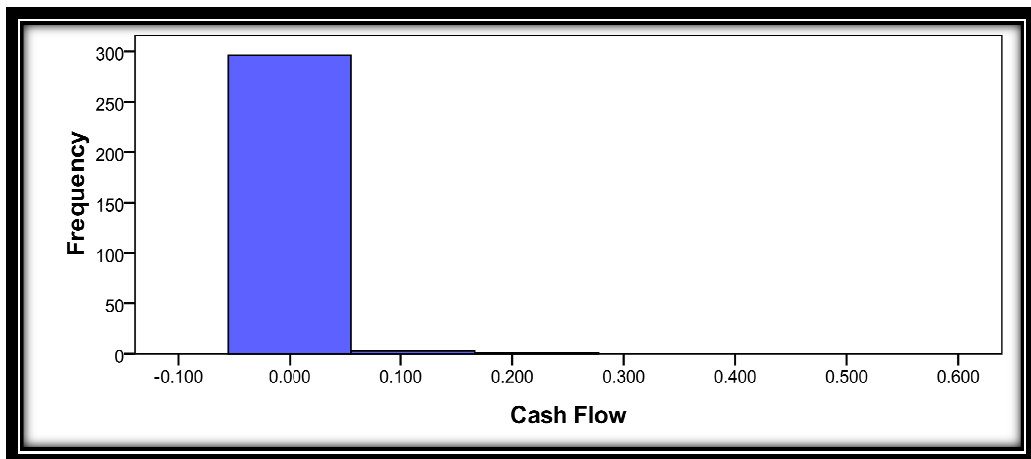
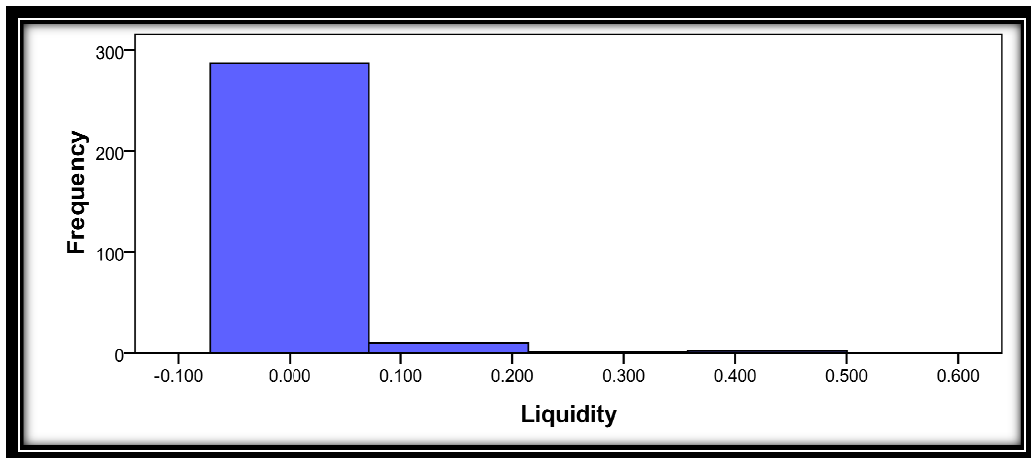
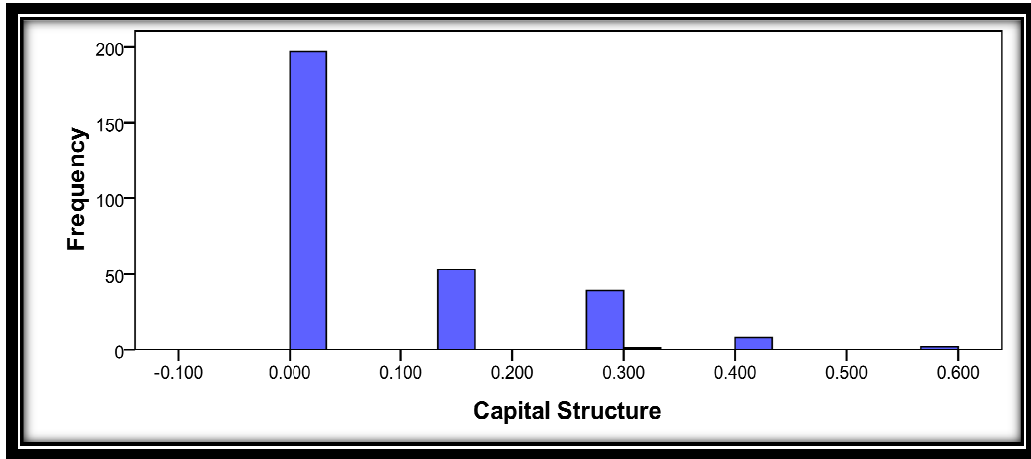
In summary, the histograms show the distribution of composite measure for CG and CM is slightly skewed with a more normal distribution for OC. Firm size is highly skewed, therefore consistent with past studies, this variable is recomputed as the natural log of firm size. Firm size (after the log transformation) is normally distributed.

Appendix D: Histograms for EFRD and Five Sub-categories

The histograms for EFRD and its five key sub-categories (*Share Market Measures, Profitability, Capital Structure, Liquidity and Cash Flow*) are presented in this appendix.



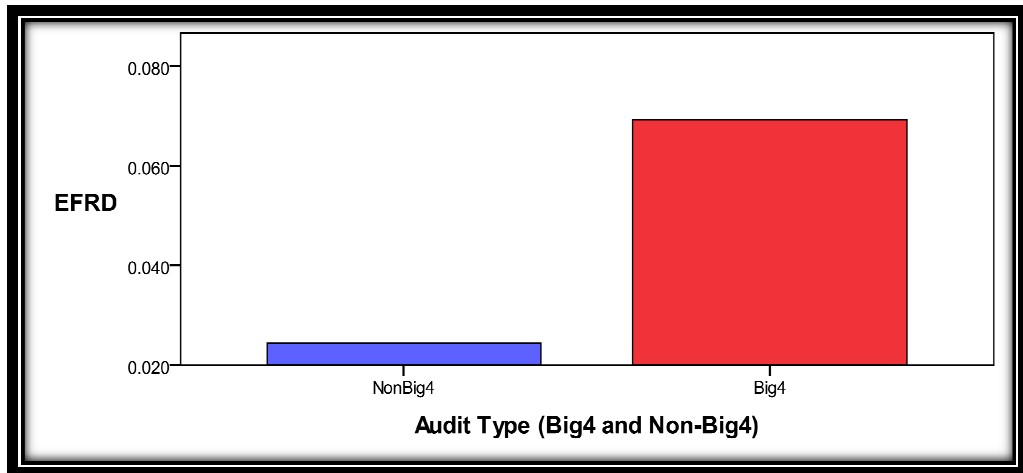
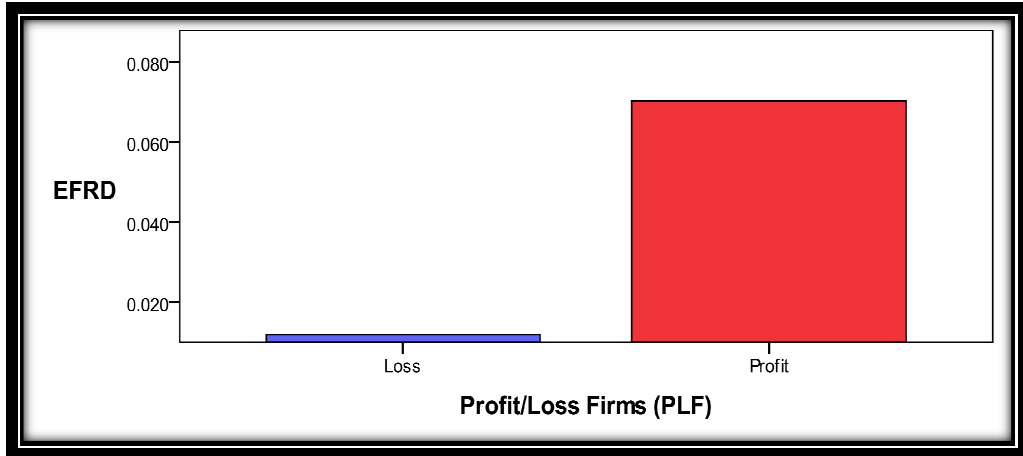
**Appendix D: Histograms for EFRD and Five Sub-categories
(continued)**



Overall, the first three sub-categories are mostly reported by the sample Australian listed firms, with an average of EFRD of 5.3%.

Appendix E: EFRD with Profit/Loss Firms and Type of Auditor

Appendix E provides graphs showing statistically different of EFRD between Profit/Loss Firms and audit firm type.



In summary, the graphs illustrate that profit firms and Big4 clients communicate more financial ratios in their annual reports.

Appendix F: Tukey HSD Sub-EFRD with Auditor's Name

Appendix F offers the result of further Tukey HSD analysis between EFRD five sub-categories with auditor's name.

Sub-EFRD	Auditor's Name		Mean Difference	Sig.
Share Market Measures	KPMG	EY	0.017	0.868
		DT	0.008	0.996
		PWC	-0.007	0.995
		Others	0.066	0.000*
	EY	KPMG	-0.017	0.868
		DT	-0.009	0.991
		PWC	-0.024	0.625
		Others	0.049	0.008*
	DT	KPMG	-0.008	0.996
		EY	0.009	0.991
		PWC	-0.015	0.953
		Others	0.059	0.018**
	PWC	KPMG	0.007	0.995
		EY	0.024	0.625
		DT	0.015	0.953
		Others	0.074	0.000*
Others	KPMG	-0.066	0.000*	
	EY	-0.049	0.008*	
	DT	-0.059	0.018**	
	PWC	-0.074	0.000*	
Profitability	KPMG	EY	0.034	0.429
		DT	0.043	0.365
		PWC	0.026	0.696
		Others	0.098	0.000*
	EY	KPMG	-0.034	0.429
		DT	0.010	0.993
		PWC	-0.007	0.996
		Others	0.064	0.001*
	DT	KPMG	-0.043	0.365
		EY	-0.010	0.993
		PWC	-0.017	0.953
		Others	0.055	0.076***
	PWC	KPMG	-0.026	0.696
		EY	0.007	0.996
		DT	0.017	0.953
		Others	0.071	0.000*
Others	KPMG	-0.098	0.000*	
	EY	-0.064	0.001*	
	DT	-0.055	0.076***	
	PWC	-0.071	0.000*	

Legend: *, **, *** Highly significant at the 0.01 p-value level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); KPMG is KPMG Peat Marwick; EY is Ernst & Young; DT is Deloitte & Touche; PWC is PriceWaterhouse Coopers and Others are all other audit firms.

Appendix F: Tukey HSD Sub-EFRD with Auditor's Name (continued)

Sub-EFRD	Auditor's Name		Mean Difference	Sig.
Capital Structure	KPMG	EY	0.025	0.814
		DT	0.025	0.888
		PWC	0.018	0.939
		Others	0.100*	0.000*
	EY	KPMG	-0.025	0.814
		DT	0.001	1.000
		PWC	-0.006	0.998
		Others	0.075	0.001*
	DT	KPMG	-0.025	0.888
		EY	-0.001	1.000
		PWC	-0.007	0.999
		Others	0.075	0.021**
	PWC	KPMG	-0.018	0.939
		EY	0.006	0.998
		DT	0.007	0.999
		Others	0.082	0.001*
	Others	KPMG	-0.100	0.000*
		EY	-0.075	0.001*
		DT	-0.075	0.021**
		PWC	-0.082	0.001*
Liquidity	KPMG	EY	0.003	0.995
		DT	-0.013	0.729
		PWC	-0.005	0.980
		Others	-0.003	0.993
	EY	KPMG	-0.003	0.995
		DT	-0.017	0.481
		PWC	-0.009	0.857
		Others	-0.007	0.882
	DT	KPMG	0.013	0.729
		EY	0.017	0.481
		PWC	0.008	0.941
		Others	0.010	0.841
	PWC	KPMG	0.005	0.980
		EY	0.009	0.857
		DT	-0.008	0.941
		Others	0.002	0.999
	Others	KPMG	0.003	0.993
		EY	0.007	0.882
		DT	-0.010	0.841
		PWC	-0.002	0.999

Legend: *,**,*** Highly significant at the 0.01 p-value level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); KPMG is KPMG Peat Marwick; EY is Ernst & Young; DT is Deloitte & Touche; PWC is PriceWaterhouse Coopers and Others are all other audit firms.

Appendix F: Tukey HSD Sub-EFRD with Auditor's Name (continued)

Sub-EFRD	Auditor's Name		Mean Difference	Sig.
Cash Flow	KPMG	EY	0.003	0.920
		DT	0.001	1.000
		PWC	0.005	0.664
		Others	0.004	0.751
	EY	KPMG	-0.003	0.920
		DT	-0.002	0.987
		PWC	0.002	0.979
		Others	0.001	0.998
	DT	KPMG	-0.001	1.000
		EY	0.002	0.987
		PWC	0.004	0.875
		Others	0.003	0.940
	PWC	KPMG	-0.005	0.664
		EY	-0.002	0.979
		DT	-0.004	0.875
		Others	-0.001	0.996
Others	KPMG	-0.004	0.751	
	EY	-0.008	0.998	
	DT	-0.003	0.940	
	PWC	0.001	0.996	

Legend: *,**,*** Highly significant at the 0.01 p-value level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); KPMG is KPMG Peat Marwick; EY is Ernst & Young; DT is Deloitte & Touche; PWC is PriceWaterhouse Coopers and Others are all other audit firms.

In summary, the result shows that firms audited by 'Others' audit firms significantly communicate less *Share Market Measures*, *Profitability* and *Capital Structure* sub-categories as compared to Big4 audit firms. However, there is no difference for the remaining sub-categories (*Liquidity* and *Cash Flow*).

Appendix G: ANOVA EFRD with Industry Six Categories

Additional analysis is also carried out for six categories of industry and the result is presented in Appendix G.

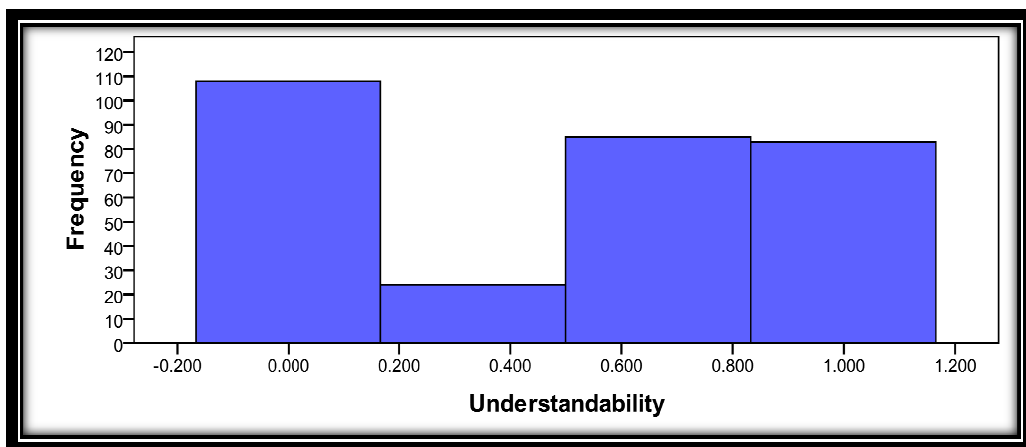
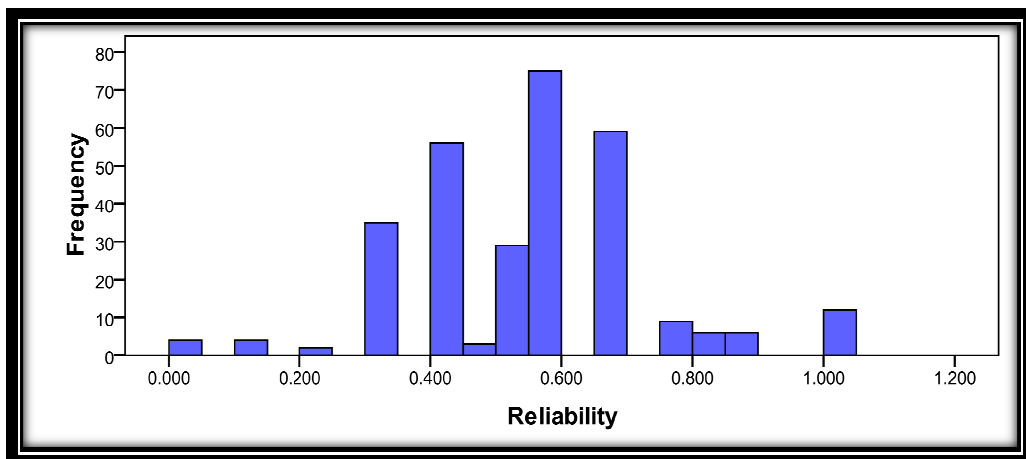
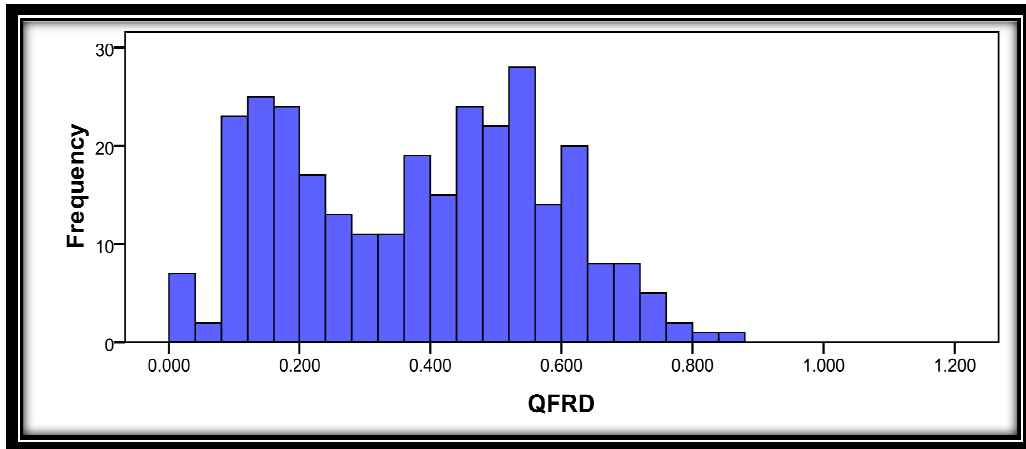
EFRD				
	N	Mean	F	Sig.
Industry6			5.313	0.000*
Resources:				
Energy	24	4.9		
Materials	51	2.3		
Manufacturing:				
Industrials	75	5.1		
Services:				
Consumer discretionary	55	5.5		
Consumer staples	20	7.8		
Financials:				
Financials	75	6.9		

Legend: *, **, *** Highly significant at the 0.01 p-value level, significant at the 0.05 level, moderately significant at the 0.10 level respectively (2-tailed); Industry6 is further sub-divided of industry into six major category namely Energy, Materials, Industrials, Consumer discretionary, Consumer staples and Financials.

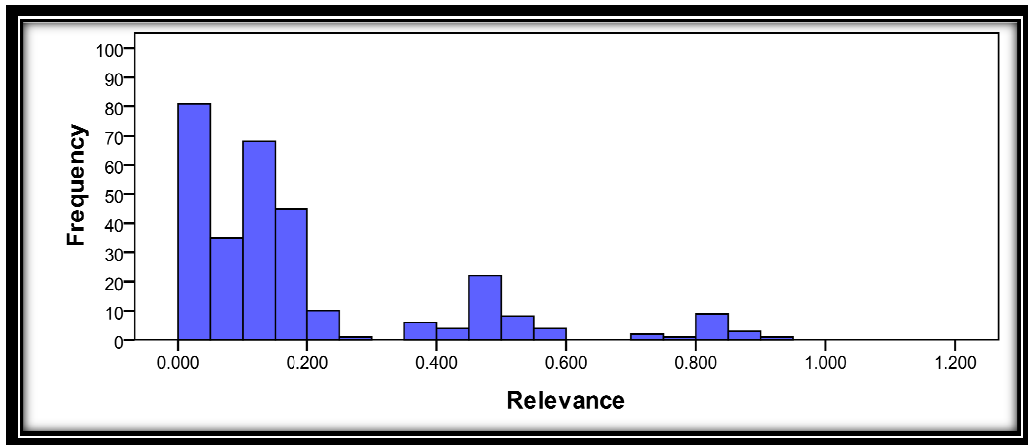
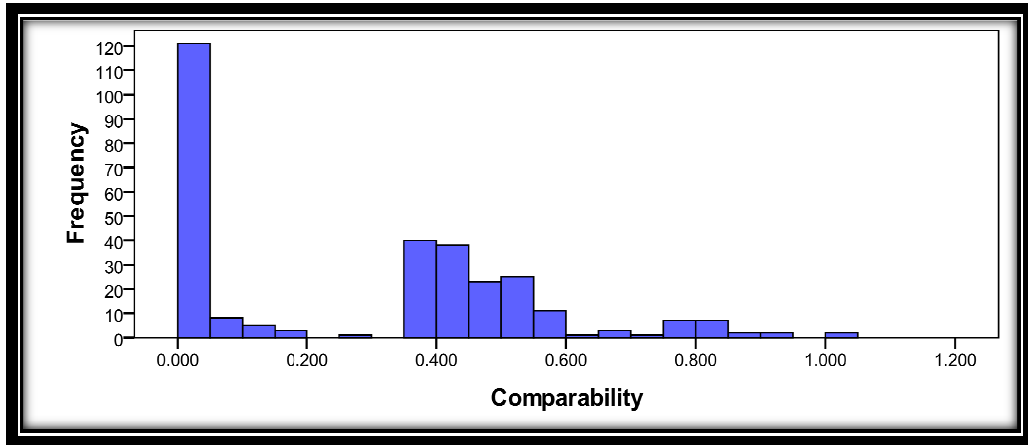
There is statistically significant difference of EFRD across six industry categories. For the *Resources* sector, the *Materials* sub-category contributes to the lower EFRD as compared to the *Energy* sub-category. While for the *Services* sector, *Consumer staples* has more disclosure of EFRD. Overall, the *Financials* sector has the highest communication of financial ratios.

Appendix H: Histograms for QFRD and Four Sub-categories

Appendix H visualises the QFRD. It also provides histograms of four QFRD sub-categories namely *Relevance*, *Reliability*, *Comparability* and *Understandability*.



**Appendix H: Histograms for QFRD and Four Sub-categories
(continued)**



In summary, the average of QFRD is 37.8%. *Reliability* and *Understandability* sub-categories have the highest scores, while *Comparability* and *Relevance* quality characteristics have lower incidence.