Centre for Research in Applied Economics (CRAE)

Working Paper Series
2007-04
July

"Expert Political Risk Opinions and Banking System Returns: A Revised Banking Market Model"

By John Simpson

Centre for Research in Applied Economics,
School of Economics and Finance
Curtin Business School
Curtin University of Technology
GPO Box U1987, Perth WA 6845 AUSTRALIA
Email: michelle.twigger@cbs.curtin.edu.au
Web: http://www.cbs.curtin.edu.au/crae

ISSN 1834-9536

Curtin
University of Technology

EXPERT POLITICAL RISK OPINIONS AND BANKING SYSTEM RETURNS: A REVISED BANKING MARKET MODEL

John Simpson[1]

Abstract

Human behaviour in banking and financial systems is in part made up of a complex mix of political, social and cultural factors. These factors are reflected in expert opinion based political risk scores. Market inefficiency is largely a result of anomalies in human behaviour causing information asymmetries. A basic systemic market model is re-specified into a model for international banking systems, which controls for pure political risk. Samples of developed and developing banking systems are examined. Political risk factors and world banking returns are exogenous in models of country-banking system returns. New political information assists in explaining banking system stock returns. The findings should be of interest to investors in banking stocks. Banking regulators may be assisted in decisions on appropriate levels of regulatory capital as a benchmark for banking systems. The model could help to anticipate financial crises.

Key words: Political risk, international banking market model, exogeneity, and risks scores.

JEL Classification: F 36

Telephone 08 92664417
Facs. 08 92663026
e mail simpsonj@cbs.curtin.edu.au

[1] Senior academic staff at School of Economics and Finance, Curtin University, Western Australia.

Introduction

Financial economists often focus solely on historical economic and financial data and ignore the human element. This behavioural element is difficult to measure. Risk ratings agencies,[2] canvassing the opinions of credit risk experts, have attempted to quantify political risk by scoring various countries according to degrees of such risks as corruption, quality of bureaucracy and history of law and order. In this paper these subjective factors are deemed to be pure political risk factors.

Political risk in a banking context is deemed to be the risk that cash flows accruing to a country's banks and bank investors will be adversely affected by changes in government policy that are independent of monetary policy considerations. Political risk is country specific and subjectively assessed. The most appropriate investigative tools for this investigation derive from portfolio and capital market theories adapted to control for pure political risk.

Markowitz (1959) developed a basic portfolio model for securities based on a series of broad assumptions relating to investor behaviour[3]. He demonstrated that the variance of the returns was a meaningful measure of portfolio risk. Under his assumptions, a single asset or a group of assets in a portfolio is efficient if no other asset or group of assets provides a higher expected rate of return for the same or lower risk or lower risk with the same or higher rate of return. Capital market theory has built on the Markowitz portfolio model and requires similar investor behavioural assumptions with additional assumptions that include consideration of the risk free rate of return[4].

[2] For example, ICRG (2005) published by the Political Risk Services Group.

[3] For example, investors maximise one-period expected utility and their utility curves demonstrate diminishing marginal utility of wealth, and for a given risk level investors prefer higher to low returns and for a given level of return lower for higher risk.

[4] Other principal assumptions are that capital markets are in equilibrium with all investments priced accurately in line with their risk levels and that there is no inflation or change in interest rates or inflation is fully anticipated. Also that there are no taxes or transaction costs in buying or selling assets.

The capital asset pricing model (CAPM) developed by Sharpe (1964) and arbitrage pricing theory (APT) developed by Ross (1976) differ in that the latter includes several risk factors. This permits a more comprehensive definition of systematic investment risk than that in the CAPM's single market portfolio. Fama and French (1992) found a weak association between the returns of an asset and its beta. They found statistically significant relationships between returns, firm size and the ratio of book to market values. Roll (1977) suggested that the market proxy for CAPM may not be mean-variance efficient.

A criticism of the APT is that the risk factors in the model are not defined in terms of their quantity, but significantly, the APT asserts that a security's return has an expected and an unexpected component. By implication it has a measurable or quantifiable or systematic component based on fact and a difficult to measure or unsystematic component that is based largely on opinion.

More recently, multifactor models have attempted to turn theory into practice and use a variety of macro and micro economic factors to explain risk and return. Many of these multifactor models may not be firmly founded in capital market or economic theory and there are many different specifications (Reilly & Brown, 2003). Ultimately, if political, social and cultural factors are to be taken into account in a model of country banking system returns, it is necessary to incorporate them into a basic market model. This avoids the myriad of problems encountered in more advanced versions of the CAPM or the APT or the multifactor models. Reilly and Brown (2003) imply that it is feasible to apply a basic market model to a financial system using systemic stock price index data provided the constituents of the indices used are representative of the industry in the country concerned.

In a basic market model, the unsystematic factors are largely human behavioural in nature and include country specific political, cultural and social influences. Economic (market) factors based on fact are captured in the regression intercept and beta as systematic risk.

Country specific factors are captured within the error term along with unmeasurable factors such as unanticipated terrorist attacks and natural disasters. A key question in this paper relates to the proportion of unsystematic risk that is described by pure political risk.

Sovereign risk ratings compared to pure political risk ratings

Sovereign credit rating history is published by world credit risk rating agencies such as Standard and Poor's, Moody's and Fitch-IBCA. The ratings scales and assessments are comparable and the scales extend from extremely strong ability to repay through to default. The agencies also report credit watches (short-term potential direction) and ratings outlooks (long-term potential directions).

According to various authors[5], country risk is the inability or unwillingness of a country to service external debt. This implies that total country risk has an economic and a financial component (that is, a systematic component that is based on historical balance of payment data) as well as a human component (or an unsystematic or country specific component that is based on opinions on political outcomes that are also influenced by social and cultural factors). The economic and financial component is objectively assessed as it is based on fact. It is not avoidable as it is the same for all.

The unsystematic component of risk is largely subjectively assessed (that is, it is political, social and cultural in nature) and thus is difficult to measure. However unsystematic risk is avoidable through diversification. Political risk is the slowing down in the meeting of external commitments due to political factors such as riots, strikes and civil unrest and this is related to other factors such as the degree of corruption in government, the history of law and order, the quality of the bureaucracy etc. These factors have much to do with the social customs and cultural history of most countries.

[5] Referred to in Simpson (2002).

Simpson (2002) undertook a cross sectional study of 1995 country and international banking risk ratings and economic and financial data, and from this study several comments may be made about the leading country/sovereign risk ratings agencies. Firstly, the risk ratings from these agencies are highly positively correlated. Secondly, country risk ratings may be largely replicated using primarily trade performance and debt serviceability data. Thirdly, country risk ratings are also highly positively correlated with international banking risk ratings, thus reflecting the importance of banks as key economic agents. Fourthly, pure political risk factors have a very small role in the ratings replication process. Finally, from a cross sectional analysis of risk ratings alone it is not possible to tell whether or not the ratings lead or lag either financial or economic crises.

In light of the problems associated with the analysis of cross sectional country/sovereign risk score data, it is proposed in this study that pure political risk data be incorporated into returns data and isolated as a separate variable for investigation in both unlagged regression and lagged bivariate time series analysis. Pure political risk scores are available in time series through the International Country Risk Guide (ICRG). The basis of this risk scoring system is described in the section on pure political risk and in Appendix 1.

The issues in the study are as follows: How important are pure political risk factors in explaining unsystematic risk in banking system returns? Are these risk factors therefore significant in explaining banking system returns? Do the risk score changes and world banking returns lead or lag stock market returns in banking systems? If world banking returns and pure political risk factors are exogenous, is a new re-specified international banking market model feasible? Can such a model be of use to banking regulators and to international investors? That is, will new information be added and incorporated in banking system returns?

The literature on stock market returns and country/sovereign risk

Most authors have not properly differentiated between country/sovereign and pure political risks. That is, they have analysed country or sovereign risk ratings (which have strong economic and financial components) and have ignored pure political risk. Studies such as Holthausen and Leftwich (1986), Hand, Holthausen and Leftwich (1992), Maltosky and Lianto (1995) argued that sovereign risk rating downgrades were informative to equity markets, but upgrades did not supply markets with new information. Cantor and Packer (1996) examined a sample of developed and emerging markets over the period 1987 to 1994 and found that sovereign risk ratings had a significant impact on bond yield spreads.

Erb, Harvey and Viskanta (1996) discussed the importance of an understanding of country risk for investors. They found that country risk measures are correlated with future equity returns but financial risk measures reflect greater information. They also found that country risk measures are also highly correlated with country equity valuation measures and that country equity value oriented strategies generated higher returns. Diamonte, Liew and Stevens (1996) used analyst's estimates of country risk to show that country risk represents a more important determinant of stock returns in emerging rather than in developed markets. They also found that over the past 10 years country risk had decreased in emerging markets and increased in developed markets. They speculated that if that trend continued the differential impacts of country risks in each of those markets would narrow.

Larrain, Reisen and von Maltzan (1997) incorporated country risk data up to the Mexican crisis of 1994 to 1995 and found that the overall impact of ratings changes on bond prices was insignificant. Hill (1998) found that in times of crisis many investors may be determined to minimise exposure to securities affected by country risk until they have more information, but after a period of calm the spreads being offered appear to be too high relative to the risks. After more investors return to the market the spreads get less and when there is another crisis

the cycle recommences. Specifically in regard to the Asian currency crisis, Radelet and Sachs (1998) suggested that country/sovereign risk ratings agencies were too slow to react and when they did react it was suggested that their ratings intensified and prolonged the crisis.

Ferri, Liu and Stiglitz (1999) argued that the ratings agencies behaved in a procyclical manner by upgrading country/sovereign risk ratings during boom times and downgrading them during crises. Reisen and von Maltzan (1999) argued that ratings agencies exacerbated boom-bust cycles in financial markets and put emerging markets at greater risk. Hooper and Heaney (2001) studied regionalism, political risk and capital market segmentation in international asset pricing. They concluded that multi index models should be tested that incorporate a regional index, an economic development attribute, commodity factors and a political risk variable in order to more effectively price securities.

Brooks, Faff, Hillier and Hillier (2004) argued that equity market responses to country/sovereign risk ratings changes revealed significant responses following downgrades. Hooper, Hume and Kim (2004) found that ratings agencies provided stock markets and foreign exchange markets in the United States with new tradeable information. Ratings upgrades increased stock markets returns and decreased volatility significantly. They also discovered significant asymmetric effects of ratings announcements where the market responses were greater in the case of ratings downgrades.

Few authors have examined pure political risk factors. However, Busse and Hefeker (2005) explored the connection between pure political risk, institutions and foreign direct investment flows (some of which is channelled into stock markets). They found that government stability, the absence of internal conflicts and ethnic tensions, basic democratic rights and the ensuring of law and order are highly significant determinants of foreign investment flows.

The evidence is mixed but most evidence points to country/sovereign risk having a significant relationship with stock market returns. Some arguments imply that financial crises

refected in reduced stock market returns are the drivers of sovereign risk ratings. If this is the case, risk ratings agencies cannot contribute new information to financial and banking markets for investors and nor could they be useful to banking regulators.

The Basel Committee is becoming more reliant on country/sovereign risk ratings agencies for its regulatory regimes. However, they may be ignoring pure political risk. It is put that the policy implications are only relevant and new information will only be added to markets if it can be proven that pure political risk rating changes, whether upgrades or downgrades, lead changes in banking stock market returns. This cannot be discovered in single period regression analysis. Nevertheless, regression analysis of unlagged data will at least identify a statistically significant relationship between variables. Analysis of lagged data in vector autoregressive (VAR) models will verify whether or not a new single period systemic international banking market model can include the specification of a subjectively based behavioural variable (such as pure political risk ratings).

What is pure political risk?

Economic and financial risk has nothing overtly to do with pure political risk, although it is arguable that under the surface, the unwillingness to service external debt may be influenced by acute shortages of foreign exchange (Bourke & Shanmugam, 1990). Pure political risk relates to political stability. Expert opinions are collected, collated and categorised by scoring systems (such as ICRG (2005) published by the Political Risk Services Group). The areas rated include government stability, socio economic conditions, investment profile, internal conflict, external conflict (where the ratings ascribed are out of 12), corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability (where the ICRG ratings are out of 6), and the quality of bureaucracy (where the IRCG rating is out of 4).

According to ICRG (2005) the higher the score or rating in each category, the lower the risk. The ratings by ICRG differentiate between alternating democracies[6], ranging through denominated democracies, de facto one party state, de jure one party state, to autarchy[7]. In these ratings the lowest risk applies to alternating democracies and the highest risk applies to autarchies. For definitions and descriptions of pure political risk components see Appendix 1.

The model

The first step is the specification of a basic systemic international banking market model of unlagged returns variables. The errors of the regressions of country banking stock market price index returns [8] against a world banking stock market price index return are captured so that differentiation may be made between systematic and unsystematic risk.

According to this model systematic risk components are assumed captured in the regression intercept and coefficient and idiosyncratic (unsystematic) risk components are assumed captured in the error term.

$$R_{i_t} = \alpha_{i_t} + \beta_{i_t}(R_{w_t}) + e_{i_t} \qquad 1)$$

Where;

R_{i_t} is the return on a banking system's price index i at time t.

α_{i_t} and β_{i_t} are the regression coefficients representing the proportion of systematic or market risk in banking system i at time t.

R_{w_t} is the return on a world banking price index w at time t.

e_{i_t} is the error term of the regression indicating the unsystematic risk in banking system i at time t.

[6] Characterised by free and fair elections for the legislature and executive, constitutions, more than one political party, checks and balances in executive, legislative and judicial functions, an independent judiciary, and constitutional protection of human liberties.

[7] Where leadership of the state is by a group or an individual without being subject to any franchise, either through military might or inherited right.

[8] Returns = $R_t = \dfrac{(P_t - P_{t-1})}{P_{t-1}}$.

For the purposes of this study an in accordance with capital market theory, the regression errors are then adopted as a measure of unsystematic risk in those banking markets such that $e_{i_t} = U_{i_t}$ where U_{i_t} is the unsystematic risk in banking system i at time t.

The regression intercepts and coefficient in Equation 1 are assumed to capture all market risk factors such as changes in interest rates, exchange rates and the economic and financial components of country/sovereign risk reflected in balance of payments data. It is assumed that pure political risk (due entirely to political, social and cultural factors) is subjectively quantifiable, country specific and may be considered as part of unsystematic risk.

Therefore, when unsystematic risk, as defined above, is regressed on political risk ratings associated with banking system returns, the regression coefficients indicate the contribution of political risk to unsystematic risk in each banking market. The residual of this regression indicates the remaining proportion of unsystematic risk that is probably unmeasurable, but attributable to such factors as natural disasters. Such factors are impossible to predict and are part of the residual in an unlagged unsystematic risk regression.

$$U_{i_t} = \delta_{i_t} + \phi_{i_t}(P_{i_t}) + r_{i_t} \qquad 2)$$

Where;

U_{i_t} is the unsystematic risk in banking system i at time t.

P_{i_t} is pure political risk associated with banking system returns for banking system i at time t.

δ_{i_t} and ϕ_{i_t} are the regression intercept and coefficient (representing the proportion of unsystematic risk explained by political risk (P_{i_t}) associated with the returns in banking system i at time t).

r_{i_t} is the regression error term representing the proportion of unsystematic risk explained by factors other than subjectively quantifiable pure political factors in banking system i at time t.

The next step is to specify a new basic single system international banking market model treating world banking returns and political risk variables as exogenous.

$$R_{i_t} = \alpha_{i_t} + \beta_{1i_t} R_{w_t} + \beta_{2_{i_t}} P_{i_t} + u_{i_t} \qquad 3)$$

Where;

R_{i_t} is the return on a country banking system i price index value at time t.

R_{w_t} is the return on the world banking price index at time t.

P_{i_t} is pure political risk associated with banking system returns in banking system i at time t.

α is the regression intercept and β_1 and β_2 are the regression coefficients.

u_{i_t} represents the error term that reflects substantially reduced unsystematic risk factors[9] that are not measurable or that are difficult to measure.

Based on Granger (1988) findings that financial and economic time series may contain unit roots and in the development of the theory of non-stationary time series analysis, the unlagged regression model (Equation 3) is re-specified into a lagged vector autoregressive (VAR) model to implement VAR based tests of cointegration and causality to test for long-term cointegrating relationships and exogeneity.

$$R_{i_t} = a(R_{i_{t-1}}) + ...a_n(R_{i_{t-n}}) + b(R_{w_t}) + c(P_{i_t}) + e_{1i_t} \qquad 4)$$

The data

Daily banking stock market price index data from 31/12/1999 to 17/9/2004 are extracted from the Datastream database and converted to returns data for developed countries (represented by a sample of developed economies in the USA, UK, and Australia) and a sample of developing economies or emerging markets (represented by Thailand, The Philippines and Malaysia) are compared to returns on the world-banking price index. The

[9] Pure political risk factors now being included in the intercept and coefficients of the regression.

data are extracted from Datastream for the period January 1997 to January 2003. The data are analysed using the EViews (2001) statistical package.

Political risk ratings have been described above by ICRG in Appendix 1. The monthly composite political risk scores (combining all of the risk components and subcomponents) are ascribed by ICRG to be out of 100 for each country. According to ICRG, the numerically higher the ascribed score, the lower the political risk. For the purposes of this paper and for ease of demonstrating the risk/return tradeoff, the scores are deducted from 100 and the resultant number is multiplied by 0.01 to arrive at a probability of default due to pure political risk. In this way a low probability of default reflects low political risk and a high probability of default represents high political risk.

This is consistent with finance theory where low risk is associated with low returns and high risk is associated with high returns. The resultant probabilities are then multiplied by daily banking stock market index returns to arrive a daily country political risk value associated with that country's banking returns. This is then referred to as a country banking political risk variable. That is, the country banking political risk variable in Equations 3 and 4 is represented in the following expression. $P_{i_t} = (100 - ICRGScore)(0.01)(R_{i_t})$. It is also consistent with finance theory in the risk/return trade off, that a low value of the country banking political risk variable P_{i_t} means that a low level of pure political risk for a country is associated with a given level of that country banking system's returns, R_{i_t}.

Preliminary analysis

The first part of the preliminary analysis tests level series and regression errors for stationarity, serial correlation and heteroskedasticity. Initial regression (OLS), unit root Augmented Dickey Fuller (ADF) tests [10] and serial correlation Durbin Watson (DW) tests [11]

[10] Dickey and Fuller (1981)

[11] Durbin and Watson (1971)

of unlagged data show that level series are converted from non-stationary to stationary processes on first differencing, as are the errors of the associated regressions. The DW tests show that the errors in Equations 1 and 2 are not serially correlated. However, heteroskedasticity (as shown through White tests[12]) remains persistent in the errors (except in the case of the errors for the Thailand banking system) and weighted least squared regressions are specified for the application of Equations 1 and 2.

On the bases that the series are integrated non stationary processes, the unlagged Equation 3 model is re-specified into a VAR in order to run VAR based tests of cointegration and causality of lagged variables. Cointegration tests (Johansen, 1988) demonstrate whether or not a single VAR system representing the interaction of each country's banking returns, political risk variables and world banking returns specified on an optimal lag have similar stochastic trends and achieve equilibrium together in the long-term. Causality tests (Granger, 1988) show the short-term dynamics of the models and provide verification of exogeneity as specified in Equation 3.

Findings

Equation 1 is a basic international banking market [13] model, where banking price index returns are deemed a function of a world banking price index returns in unlagged data. The model is tested using banking system stock market returns data from three developed banking markets in the USA, the UK and Australia and three developing banking markets in Thailand, the Philippines and Malaysia. The sizes of the adjusted R square values, the t statistics and the coefficients show the strength of the relationship between country-banking price index returns and the world banking price index returns.

[12] See White tests for heteroskedasticity with and without cross terms, in EViews4 (2001)

[13] This model is preferred over an ordinary least squares (OLS) model when dealing with the presence of heteroskedasticity of an unknown form in the errors of the regressions.

These regression parameters also show the degree of systematic risk in each country banking system. The error of this regression is deemed to represent the unsystematic (idiosyncratic risk) in the market model. Lower levels of unsystematic risk (reflected in lower standard errors) are expected to be associated with developed banking systems, which are expected to have lower political risk.

Table 1 shows the results of the regression analysis of Equation 1.

Table 1

Regression results of the basic international banking market model

Country Banking System	Adjusted R Square Value	Coefficient	t Statistic	Unsystematic Risk (Standard errors)
USA	0.6332	1.2979	46.0952	0.0282
UK	0.4717	1.1467	33.1446	0.0346
Australia	0.0353	0.1749	6.8048	0.0257
Thailand	0.0266	0.3635	5.8011	0.0627
The Philippines*	0.0019	0.0660	1.8247	0.0362
Malaysia	0.0047	0.0884	2.5048	0.0353

Note: * significant at the 10% level. All other results are significant at the 1% level.

The results demonstrate that, in an overall comparison of the selected country banking systems, the developed country system regressions (particularly those for the USA and the UK) have higher adjusted R square values, higher regression coefficients, higher t statistics and lower standard errors than the developing country systems. It may be concluded that, in unlagged data, the developed banking systems have higher levels of systematic risk and lower levels of unsystematic risk than the developing country systems when interacting with the world banking system in returns.

These results need to be considered in the light of statistically significant (significance is at the 1% level) structural breaks[14] in the data in the case of the USA, UK, Australian and Malaysian banking systems according to Chow forecast and breakpoint tests. In the cases of

[14] A logical structural break occurs at the time of the 9/11 attacks on the World Trade Centre in the USA. These attacks were themselves a manifestation of political risk.

the Thailand banking system and the Philippines systems the two Chow tests yield conflicting results.

Equation 2 posited that unsystematic risk is represented by the errors of the market model specified in Equation 1. Unsystematic risk is deemed a function of the country banking political risk variable (that is, political risk for each country associated with that country's daily banking returns). According to White tests, heteroskedasticity of an unknown form exists in the errors of the unsystematic risk regressions and weighted least squares regression analysis is undertaken in lieu of OLS. The DW tests reveal that there is no serial correlation in the errors of the unsystematic risk regressions.

The errors of Equation 2 represent the portion of unsystematic risk that is unexplained by political risk factors. The size of the standard error should be greater for developed banking systems because less of their unsystematic risk is expected to be explained by political risk. Developed banking systems are expected to be less politically risky and more informationally efficient than developing country banking systems. In addition the developed banking systems (particularly those of the USA and the UK) are expected to have greater global integration and interaction.

The results in Table 2 show that, in general, the interaction between the unsystematic risk variable and the political risk variable is greater in the developing country systems. The adjusted R square values and t statistics for the developing country systems are higher than those for the developed countries (particularly the USA and UK systems). The standard errors in the developed country regressions are generally higher. However, the developing system in Thailand has a slightly higher standard error than the UK system. According to DW test statistics for each country unsystematic risk regression there is no evidence of serial correlation in the errors.

Table 2

Regression results of an unsystematic risk model

Country Banking System	Adjusted R Square Value	Coefficient	t Statistic	Standard Errors
USA	0.2761	1.9658	21.6718	0.0907
UK	0.5282	0.5282	37.1100	0.0142
Australia	0.9552	8.3815	162.0903	0.0517
Thailand	0.9718	3.4442	205.8439	0.0167
The Philippines	0.9831	2.7712	267.4335	0.0104
Malaysia	0.9884	3.2861	324.1919	0.0102

Note: Statistical significance levels are at 1%.

The lagged VAR model in Equation 4 is based on the unlagged country banking returns model in Equation 3. This bivariate model includes the country political risk variable and the world banking returns variable treated exogenously and VAR based cointegration and causality tests are applied. These tests provide an indication of the long-run relationships, short-term dynamics and exogeneity in each of the developed and developing country banking returns models as they each interact with the world banking return and country-political risk variables.

Exogeneity would be expected to run from the world banking system to both developed and developing banking systems, with stronger relationships between the world system and the developed systems because the developed systems are more informationally efficient and possess greater global integration. The purpose of the study is to ascertain if exogeneity lies with the country-political risk variable in each VAR system either by itself or together with the world returns variable within the country banking returns models.

The VAR stability condition checks in each case showed that no roots lay outside the unit circles and that each of the VARs satisfied the stability condition. Lag order selection and cointegrating rank determination was undertaken by examination of the maximum value of

Schwartz information criteria [15] and by Johansen cointegration tests. After lag order was selected, the Johansen test was applied to examine trace statistics and maximum eigenvalues at both the 5% and 1% levels of significance. In the cases of each country banking system there is evidence of cointegration (that is, three cointegrating equations in each case) on a 1 day lag order. The VAR pairwise Granger causality/block exogeneity Wald tests were then undertaken to ascertain whether or not each endogenous variable could be treated exogenously at significance levels of 5% for the sizes of the respective Chi Square values (See Appendix 2).

With regard to the USA banking returns model, the USA political risk variable and the world returns variable considered together may be treated as exogenous variables. When considered separately, only the USA political risk variable may be treated as an exogenous variable. In the latter case dual Granger causality exists, but is stronger (with a higher significant Chi Square value) running from the US political risk variable to USA banking returns. In addition it is noted that USA returns are exogenous to world returns and that USA political risk in returns variable is exogenous to world returns. This demonstrates the unique strength and influence of the USA economy and banking system.

With regard to the UK returns system, the UK political risk variable and the world returns variable (considered together and separately) may be treated as exogenous variables. Dual causality exists between UK returns and the UK political risk variable, but stronger causality runs from the UK political risk variable to UK banking returns. It is also noted that significant causality runs from the world returns variable to the UK political risk variable.

When considered together, the Australian political risk variable and the world returns variable may be treated as exogenous to the Australian banking returns variable. When

[15] Patterson (2000) suggests that Swartz information criteria may be used in preference to other criteria such as Akaike to simultaneously estimate lag order and cointegrating rank. Alternatively an information criterion such as Akaike or Swartz can be used to determine the lag order and then the Johansen procedure can be used to estimate the cointegrating rank. This paper uses both the Swartz criterion and the Johansen test to estimate lag order and cointegrating rank.

treated separately the Australian political risk variable is not statistically significant. Dual Granger causality exists between world banking returns system and Australian banking returns, but stronger Granger causality runs from the world system to the Australian system. It is noted that significant Granger causality runs from the world returns variable to the Australian political risk variable.

Granger causality showed that when considered together the Thailand political risk variable and the world return variable may be treated exogenously, but when treated separately, Granger causality runs significantly from world banking returns to Thailand returns only.

The Philippine political risk variable and the world return variable exhibit significant exogeneity when considered together and separately, running to the Philippines bank returns variable. Significant dual causality exists in the political risk variable and the Philippines banking returns system (but the Chi Square value is slightly higher running to the political risk variable). There is evidence that the political risk variable and the world returns variable considered together may be treated exogenously in the Philippine banking returns system.

In the case of Malaysian system significant dual Granger causality runs between the Malaysian returns variable and the Malaysian political risk and the world returns variables whether the latter two variables are considered together or separately. The Chi Square value shows that the stronger causality runs from the Malaysian political risk variable and the world returns variables to the Malaysian banking returns system, thus providing evidence that the former two variables may be treated as exogenous in the Malaysian banking returns system.

Conclusion

Evidence is provided consistent with theory that developed country systems have higher levels of systematic risk and lower levels unsystematic risk than developing countries in the sample of countries studied. In the developed banking systems, market risk is expected to be greater due to economic factors that are the same for all country banking systems, but have a

greater effect in developed banking systems because of greater informational efficiency of their banking markets. Unsystematic risk, which includes country specific political, social and cultural factors, is greater in developing country banking systems studied. These country banking systems exhibit less informational efficiency and more informational asymmetry due to higher political risks in areas such as government stability, corruption and quality of bureaucracy. The sample of country banking systems was selected to represent strong, globally integrated developed economies in the USA and the UK as well as a group of developing South East Asian economies in Thailand, Malaysia and the Philippines. The developing countries have sound trading ties with the USA and have also demonstrated that they are susceptible to currency and interest rate shocks (For example, during the South East Asian currency crisis of the late 1990s).

The study also endeavoured to ascertain the proportion of unsystematic risk that may be associated with political risks associated with banking returns in the various systems. The results generally provide evidence that the political risk variable has a stronger association with unsystematic risk in the developing banking systems than in the developed banking systems studied. Out of the developed countries the same interactions are greater than in the USA and the UK. The Australian banking system is smaller in terms of market capitalisation and possesses less global interaction and integration than the banking markets of the USA and the UK.

In each country banking systems the variables are found to be cointegrated. Thus, in each country-banking system, over the period of the study, the variables exhibit similar stochastic trends and move to stability together in the long-term. Evidence is therefore provided that country political risk and world banking system returns are both important variables to include together in basic international banking market models.

The key issue addressed in this study was one of exogeneity and whether or not a basic international banking market model (either single period or lagged) can be expanded by controlling for a political risk variable to add new information to the market. Granger causality is demonstrated to run, in each country banking system, from the world banking system except in the case of the USA banking system. That the USA banking system is exogenous to the world system evidences the strength in power and influence of the USA political, economic and banking systems, and the degree of financial integration that the USA banking system has with the global system.

For all other banking systems, when the country political risk variable is considered together with the world-banking returns variable there is evidence that both may be treated as exogenous variables. In the cases of the USA, the UK, the Philippines and Malaysian banking systems, their political risks associated with their banking system returns considered separately in those systems, may be treated as an exogenous variable. It is evident a new market model can be specified in both unlagged and lagged data to help explain returns in country banking systems. New information is added to country-banking markets by pure political risk factors which are effectively captured in political risk ratings.

Previous studies have demonstrated that country/sovereign risk ratings from leading ratings agencies may be replicated using non-political data and largely reflect economic and financial information. The scoring of pure political risk (such as changes of government, corruption, the role of the military, the quality of bureaucracy and other factors that are either the cause or the effect of social and cultural factors) by reputable political risk rating agencies is therefore valuable. This should be of assistance to investors in international banking stocks and to banking regulators who need to be aware that pure political risk ratings, when so combined with daily returns data, are a leading rather than a lagging indicator no matter what the level of informational efficiency in the country banking market.

Banking stock investors have more information to enable them to make decisions in relation to portfolio diversification. Similarly, banking regulators, rather than relying partly on country/sovereign risk ratings in their assessments of value at risk will be able to gain new information about the riskiness of country banks and banking systems to assist them in formulating fairer levels of regulatory capital for banks within those systems.

References

Bourke, P., and Shanmugam, B., 1990, "Risks in International Lending", in Bourke (ed), *An Introduction to Bank Lending*, Sydney: Addison-Wesley Publishing.

Brooks, R., Faff, R., Hillier, D., and Hillier, J. 2004, "The National Market Impact of Sovereign Rating Changes", *Journal of Banking and Finance*, 28, 233-250.

Busse, M., and Hefeker, C., 2005, "Political Risk, Institutions and Foreign Direct Investment", April, *HWWA Discussion Paper* No. 315, http://ssrn.com/abstract=704283

Cantor, R., and Packer, F., 1996, "Determinants and Impact of Sovereign Credit Ratings", *FRBNY Economic Policy Review,* October 37-54.

Diamonte, R., Liew, J. M., and Stevens, R. L., 1996, "Political Risk in Emerging and Developed Markets", *Finance Analysts Journal,* May/June, http://papers.ssrn.com/sol13/papers.cfm? abstract_id=7883

Dickey, D. A., and Fuller, W. A., 1981, "Likelihood Ratio Statistics for Autoregressive Time Series within a Unit Root", *Econometrica,* Volume 49, 1022-1057.

Durbin, J., and Watson, G. S., 1971, "Testing for Serial Correlation in Least Squares Regression-111", *Biometrica,* Volume 58, 1-42.

Erb, C. B., Harvey, C. R., and Viskanta, T. E., 1996, "Political Risk, Economic Risk and Financial Risk", *Fuqua School of Business Working Paper*, No. 9606.http://ssrn.com/abstrast=7437

EViews 4 (2001), *EViews 4 User's Guide*, Quantitative Micro Software, LLC.

Fama, E., and French, K., 1992, "The Cross Section of Expected Stock Returns", *Journal of Finance*, Vol. 47, No. 2, 427-65.

Ferri, G., Liu, L., and Stiglitz, J., 1999, "The Procyclical Role of Rating Agencies: Evidence from the East Asian Crisis", *Economic Notes*, 28, 335-55.

Granger, C. W. J., 1988, "Some Recent Developments in a Concept of Causality", *Journal of Econometrics*, Volume 39, 199-211.

Greenbaum, S. I. and Thakor, A. V., 1995, *Contemporary Financial Intermediation*, The Dryden Press, Orlando, 97-129

Hand, J., Holthausen, R., and Leftwich, R., 1992, "The Effect of Bond Rating Agency Announcements on Bond and Stock Prices", *Journal of Finance*, 47, 733-52.

Hill, C. A., 1998, "How Investors React to Political Risk", *Duke Journal of Comparative and International Law*, Volume 8, Number 2, http://ssrn.com/abstract=333021

Holthausen, R., and Leftwich, R., 1986, "The Effect of Bond Rating Changes on Common Stock Prices", *Journal of Financial Economics*, 17, 57-89.

Hooper, V., and Heaney, R., 2001, "Regionalism, Political Risk and Capital Market Segmentation in International Asset Pricing", *AFA New Orleans Meetings,* http://ssrn.com/abstract=255176

Hooper, V., Hume and Kim, 2004, "Sovereign Rating Changes-Do They Provide New Information for Stock Markets?" *Working Paper University of New South Wales,* SSRN

ICRG (International Country Risk Guide), Political Risk Services Group, 1995, http://www.icrgonline.com?page.aspx?=icrgmethods

Johansen, S, 1988, "Statistical Analysis of Cointegration Vectors", *Journal of Economic Dynamics and Control,* Volume 12, Pages 231-254.

Larrain, G., Reisen, H., and von Maltzan, J., 1997, "Emerging Market Risk and Sovereign Credit Ratings", *OECD Development Centre Technical Paper 124,* April

Maltosky, Z., and Lianto, T., 1995, "The Incremental Information Content of Bond Rating Revisions: The Australian Evidence", *Journal of Banking and Finance,* 19, 891-902

Markowitz, H., 1959, *Portfolio Selection-Efficient Diversification of Investments,* New Haven, Conn., Yale University Press

Patterson, K., 2000, *An Introduction to Applied Econometrics,* MacMillan Press, London, pp.623-624.

Radelet, S., and Sachs, J., 1998, "The Onset of the East Asian Financial Crisis", *NBER Working Paper*, 6680, August

Reilly, F. K., and Brown, K. C., 2003, *Investment Analysis and Portfolio Management,* Thomson South Western, Ohio, 176-285

Reisen, H., and von Maltzan, J., 1999, "Boom and Bust Sovereign Ratings", *OECD Development Centre Technical Paper,* 148, June.

Roll, R., 1977, "A Critique of the Asset Pricing Theory's Tests", *Journal of Financial Economics,* 4, March, 129-176

Ross, S., 1976, "The Arbitrage Theory of Capital Asset Pricing", *Journal of Economic Theory,* 13, No. 2, December, 341-360

Sharpe, W F., 1964, "Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk", *Journal of Finance,* 19, No. 3, September, pp. 425-442.

Simpson, J. L., 2002, "An Empirical Economic Development Based Model of International Banking Risk and Risk Scoring", *Review of Development Economics,* Blackwell, Volume 6, Issue 1, February.

Appendix 1

Definitions and explanations of pure political risk components (ICRG, 2005)

Government stability ratings are an assessment of a government's ability to remain in office by carrying out declared policy plans. The subcomponents of this factor are government unity, legislative strength and popular support. According to the ICRG ratings, socio-economic conditions relate to pressures that conspire to constrain government action or to fuel social dissatisfaction. The subcomponents in this category are the level of unemployment, the degree of consumer confidence and the level of poverty.

The investment profile factor affects the risk to investment not covered by other political, economic and financial components and is made up of contract viability and expropriation, profit repatriation, and payment delays.

Internal conflict is an assessment of political violence in a country and its impact on governance. The highest rating means that there is no armed or civil opposition to the government and the government does not engage in arbitrary violence (either direct or indirect) against its own people. Under this rationale the lowest scores would apply to those countries where there is ongoing civil war. The subcomponents of this risk factor are thus, civil war or coups threat, terrorism or political violence, and civil disorder.

External conflict measures are an assessment of the risk to the incumbent government from foreign action, which includes non-violent external pressure (for example, diplomatic pressure, withholding of aid, trade restrictions, territorial disputes, and sanctions) to violent external pressure (such as, cross-border disputes and all-out war). The subcomponents of this category of pure political risk are cross-border conflict, and foreign pressures.

Corruption is an internal assessment of the political system. Corruption distorts the economic and financial environment and reduces the efficiency of government and business in the way the foreign direct investment is handled. Corrupt practices enable people to assume positions of power through patronage rather than ability. By so doing, an inherent instability is introduced into the political process. Examples of corruption include special financial payments and bribes, which ultimately may force the withdrawal of or withholding of a foreign investment. However, excessive patronage, nepotism, job reservations, "favour for favours", secret party funding, and suspiciously close ties between government and business have a lot to do with corruption. A black market can be encouraged with these forms of corruption. The potential downside is that popular backlash may lead to the rendering of the country ungovernable.

Military in politics is a problem because the military are not democratically elected. Their involvement in politics is thus a diminution of accountability. Other substantial ramifications are that the military becomes involved in government because of an actual or created internal or external threat. Government policy is then distorted (for example, defence budgets are increased at the expense of other pressing budgetary needs). Inappropriate policy changes may be a result of military blackmail. A full-scale military regime poses the greatest risk. Business risks may be reduced in the short-term but in the longer-term the risk will rise because the system of governance is susceptible to corruption and because armed opposition in the future is likely. In some cases, military participation will represent a symptom rather than a cause of higher political risk.

Religious tensions emanate from the domination of society and or governance by a single religious group that seeks to replace civil law and order by religious law. Other religions are excluded from the political and social process. The risk involved in such scenarios involves inexperienced people dictating inappropriate policies through civil dissent to outright civil war.

The law and order components are assessments of the strength and impartiality of the legal system and popular observance of the law respectively.

Ethnic tensions relate to racial, nationality or language divisions where opposing groups are intolerant and unwilling to compromise.

The democratic accountability component is a measure of how responsive government is to its people. The less responsive it is the greater the chance that the government will fall. This fall will be peaceful in a democratic country but possible violent in a non-democratic country. The institutional strength and the quality of the bureaucracy is a measure that reflects the revisions of policy when governments change. Low risk in this area applies to countries where the bureaucracy has the strength and expertise to govern without major changes in policy or interruptions in government services. That is, bureaucracies have a degree of autonomy from political pressure with an established independent mechanism for recruitment and training.

Appendix 2

VAR Pairwise Granger Causality/Block Exogeneity Wald Tests

Sample: 12/31/1999 9/17/2004
Included observations: 1229

Dependent variable: USAR			
Exclude	Chi-sq	D.f	Prob.
PRUSA	**15.59349**	**2**	**0.0004**
WORLDR	2.145084	2	0.3421
All	**17.50673**	**4**	**0.0015**
Dependent variable: PRUSA			
Exclude	Chi-sq	D.f	Prob.
USAR	**12.60971**	**2**	**0.0018**
WORLDR	1.766334	2	0.4135
All	**15.67876**	**4**	**0.0035**
Dependent variable: WORLDR			
Exclude	Chi-sq	D.f	Prob.
USAR	**7.995331**	**2**	**0.0184**
PRUSA	**6.594247**	**2**	**0.0370**
All	**40.13473**	**4**	**0.0000**
Dependent variable: UKR			
Exclude	Chi-sq	D.f	Prob.
PRUK	**9.403628**	**2**	**0.0091**
WORLDR	**57.40651**	**2**	**0.0000**
All	**65.14455**	**4**	**0.0000**
Dependent variable: PRUK			
Exclude	Chi-sq	D.f	Prob.
UKR	**7.899056**	**2**	**0.0193**
WORLDR	**56.87937**	**2**	**0.0000**
All	**65.46717**	**4**	**0.0000**
Dependent variable: WORLDR			
Exclude	Chi-sq	D.f	Prob.
UKR	5.560417	2	0.0620
PRUK	**6.530350**	**2**	**0.0382**
All	**12.23297**	**4**	**0.0157**
Dependent variable: AUSTR			
Exclude	Chi-sq	D.f	Prob.
PRAUST	0.906645	2	0.6355
WORLDR	**87.71548**	**2**	**0.0000**
All	**90.03391**	**4**	**0.0000**
Dependent variable: PRAUST			
Exclude	Chi-sq	D.f	Prob.
AUSTR	0.984462	2	0.6113
WORLDR	**85.76870**	**2**	**0.0000**
All	**88.53752**	**4**	**0.0000**
Dependent variable: WORLDR			
Exclude	Chi-sq	D.f	Prob.
AUSTR	3.306344	2	0.1914
PRAUST	3.567837	2	0.1680
Dependent variable: THAIR			
Exclude	Chi-sq	D.f	Prob.
PRTHAI	0.005072	2	0.9975
WORLDR	**29.45978**	**2**	**0.0000**
All	**29.52701**	**4**	**0.0000**

Dependent variable: PRTHAI

Exclude	Chi-sq	D.f	Prob.
THAIR	0.001737	2	0.9991
WORLDR	**29.55655**	**2**	**0.0000**
All	**29.63359**	**4**	**0.0000**

Dependent variable: WORLDR

Exclude	Chi-sq	D.f	Prob.
THAIR	3.138372	2	0.2082
PRTHAI	2.853639	2	0.2401
All	8.155069	4	0.0861

Dependent variable: PHILR

Exclude	Chi-sq	D.f	Prob.
PRPHIL	**6.494398**	**2**	**0.0389**
WORLDR	**32.97830**	**2**	**0.0000**
All	**39.60041**	**4**	**0.0000**

Dependent variable: PRPHIL

Exclude	Chi-sq	D.f	Prob.
PHILR	**7.343642**	**2**	**0.0254**
WORLDR	**29.50528**	**2**	**0.0000**
All	**37.36727**	**4**	**0.0000**

Dependent variable: WORLDR

Exclude	Chi-sq	D.f	Prob.
PHILR	1.071679	2	0.5852
PRPHIL	1.184726	2	0.5530
All	2.329420	4	0.6754

Dependent variable: MALR

Exclude	Chi-sq	df	Prob.
PRMAL	**6.000462**	**2**	**0.0498**
WORLDR	**42.73634**	**2**	**0.0000**
All	**46.79060**	**4**	**0.0000**

Dependent variable: PRMAL

Exclude	Chi-sq	df	Prob.
MALR	4.977093	2	0.0830
WORLDR	**41.02988**	**2**	**0.0000**
All	44.27789	4	0.0000

Dependent variable: WORLDR

Exclude	Chi-sq	df	Prob.
MALR	1.079617	2	0.5829
PRMAL	1.384139	2	0.5005
All	11.10527	4	0.0254

Note: USAR, UKR, AUSTR, THAIR, PHILR, MALR and WORLDR denote USA, UK, Australia, Thailand, the Philippines, Malaysia and World banking system returns respectively. PRUSA, PRUK, PRAUST, PRTHAI, PRPHIL and PRMAL are the political risk ratings associated with returns for each country banking system for the USA, UK, Australia, Thailand, the Philippines and Malaysia respectively. Relevant statistically significant results for this paper are typed in bold.