Credit Risks and Bank Share Valuation in Selected Four Asia Pacific Countries

Dr. Cheng Fan Fah, Prof. Dr. Annuar Nasir

Department of Accounting and Finance, Faculty Economics and Management, University Putra Malaysia, 43400 UPM, Serdang, Selangor, Malaysia. E-mail: chengfanfah@yahoo.com

Abstract: The purpose of this paper is to investigate the relationship between the credit risk and the stock valuation response to earnings for commercial banks in Australia, Korea, Malaysia and Indonesia. These four countries have different bank sizes and sovereign rating. This study applies the relevant accounting and financial ratios into regression models and aims to extend the earnings response literature and theory research to banks. This measures the influence of bank-related determinant of risk that affects risk management in Australia, Korea, Malaysia and Indonesia banks. The results show that the credit risk has the information content beyond earnings. This result is consistent with the finding in many other studies which found significant relationship on the Cumulative Abnormal Returns (CAR) and the credit risk with a positive sign. Generally, the credit risk proxy by the Provision for bad and doubtful debts/Incomes in the existing practical literature shows positive relationship among the credit risk and stock abnormal returns. This positive sign is plausible, because with a higher provision for bad and doubtful debts/Incomes and yet achieving the same amount of earnings mean a better operated banks than the other banks.
[Cheng Fan Fah, Annuar Nasir. **Credit Risks and Bank Share Valuation in Selected Four Asia Pacific Countries.** *Life Sci J* 2014;11(6):207-217]. (ISSN:1097-8135). http://www.lifesciencesite.com. 28

Keywords: Credit Risk, Bank share valuation, Earnings Response Coefficients**.**

1. Introduction

The risks of the banks are categorized into financial risks, operational risks, market risk and others. Credits risk is one of the main financial risks in bank management. Credit risk can be defined as the uncertainty that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms. Hartmann (2010) in his editorial article that review five papers concluded that there are interactions of market and credit risk. He quoted Jarrow and Turnbull (2000)'s study that based on economic theory explain market and credit risk are intrinsically related to each other and inseparable. He summarizes the implication of credit risk in risk management and to financial supervisors.

The BASEL I, II and III initiative in the setting of prudential regulations in financial institutions have targeted their effort in setting prudent regulations in managing the financial risks.[1]. Basel I, that is, the 1988 Basel Accord, primarily focused on credit risk. Assets of banks were classified and grouped in five categories according to credit risk, carrying risk weights of zero, ten, twenty, fifty, and up to one hundred percent. Banks with international presence are required to hold minimum capital equal to 8 % of the risk-weighted assets.

The goal of credit risk management is to maximise a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters. Banks need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions. Banks should also consider the relationships between credit risk and other risks. The effective management of credit risk is a critical component of a comprehensive approach to risk management and essential to the long-term success of any banking institutions.

Most countries[2] have adopted, at least in name, the principles prescribed under Basel I. The efficiency with which they are enforced varies. On June 2004, central bank governors and the heads of bank supervisory authorities adopted a new capital adequacy framework commonly known as Basel II. Most Central banks in East Asia have signaled that they intend to partially or fully adopt Basel II in the medium term. Assessed at the end of 2004, banks' degree of implementation for Basel II in various regions appeared to vary widely, but had increased significantly over the preceding two years. Effective implementation of the original Basel Core Principles (BCP) is really a prerequisite for moving to Basel II, given that the elements of Basel II build on and go beyond the BCPs. At this juncture, Basel III is the next regulatory requirements of Central Banks.

In this paper, the focus is to investigate the relationship between the credit risk and the stocks valuation response to earnings in bank for some

[1] Basel I is the term which refers to a round of deliberations by central bankers from around the world, and in 1988, the Basel Committee (BCBS) in Basel, Switzerland, published a set of minimal capital requirements for banks.

[2] currently numbering over 100

specific countries which experienced banking restructuring in the past few years. This study applies the relevant accounting and financial ratios into this research and aims to extend the earnings response literature and theory as research to banks by measuring the influence of bank-related risk determinant characteristics for financial crisis affected countries, in difference degree, included Australia, South Korea, Malaysia and Indonesia.

Analysts discover that the earnings announcements played a role in influence the movement of the shares price when they were not anticipated. In this study, the further research will extend to the others fact to examine whether the finding for the effect of the credit risk on the stocks valuation response to earnings in bank will remain unchanged in these selected countries. The reason these countries are chosen is because of the variation in their bank sizes and sovereign rating. Australia banks are the largest with the AAA sovereign rating, followed by Korea in size and AA-. Malaysia A+ and Indonesia smallest in bank size and sovereign rated as BBB-.

This study, which uses the more accurate risk-adjusted returns and regression methodology, is about the credit risk effect on bank shares revaluation in a lending capital market in the region. This paper is divided into five sections. Section 2 deals with the theory and evidence on the returns-to-earnings relation. Section 3 contains an explanation of the research design, hypotheses, data and variable selection: methodological issues are also discussed. The findings are presented in Section 4 while the paper ends with conclusions and limitation in Section 5.

2.0 Literature review

The principle financial objective of the corporation is to maximize shareholder value over the longer term, subject to an acceptable level of risk. Risk can be defined as the variability or uncertainly of return from the business and measured by the variance in net cash flows. Markowitz (1957) was the first to measure risk by the standard deviation of the outcome from the mean returns. In banking, the financial risks are the most important risk as the main sources for risks, in that it has a direct impact on the value of assets and liabilities on the balance sheet as well as affecting the level of cash flows passing through the business. The type of financial risks including foreign exchange rate risk, credit risk, liquidity risk, capital risk, and solvency risk.

The credit risk of a bank is defined as the risk that the interest or principle, or both, on securities and loans will not be paid as promised. The borrower may not meet future commitments to pay interest or repay principle outstanding when due. The better measures would be the relative amount of loans in arrears or loan losses. Credit risk is higher if the bank has more medium-quality loans, but returns are usually higher. Returns tend to be lower if the bank chooses to lower its credit risk by having a smaller portion of its assets in medium-quality loans. Note that this measure is only available internally. If one is analyzing a bank from external data, such qualitative data are not available and one must use summary measures such as non-current loans, loan losses, and loan loss provision as proxies for credit risk.

Wong (1997) follows the approach of deposit are the “material” and loans are the “work in process” discussed in Finn and Frederick (1992) by providing a firm-theoretical model of bank behavior to study the determination of optimal bank interest margins and features a risk-averse bank facing both credit risk and interest rate risk. This paper explores the determinants of optimal bank interest margins based on simple firm-theoretical model under multiple sources of uncertainty and risk aversion. As the finding for this study, the optimal bank interest margin is positively relate to the bank’s market power, to the operating cost, to the degree of interest rate risk, and to the degree of credit risk.

Lazarus (1997) tests the hypothesis that banks with more risky loans and higher interest-rate risk exposure would select loan and deposit rates to achieve higher net interest margins. This study extends the Ho and Saunders (1981) model to include default risk and its interaction with interest rate risk, and investigates whether the risk effects are heterogeneous across bank size classes. The empirical analysis also explores the impact of credit market cycles on the net interest margins. It based on the annual Federal Reserve System’s Report of Condition and Income for Commercial banks with assets of $1 Billion or more for 1989-1993. This paper use augmented dealership model of interest spreads to model the determinants of net interest margins to provide a simple framework for characterizing the risk factors that influence bank net interest margins determination. The data shows that off-balance sheet (OBS) activities promote a more diversified, margins-generating asset base than deposit or equity financing, and that cross-sectional differences in interest-rate risk and liquidity risk are related to differences in OBS exposure.

Machauer and Weber (1998) examine the relation of bank loan terms to borrower risk defined by the banks internal credit rating which also incorporates rating transition and its implications on the relation. This study respects to Money illusion and phenomena linked with relationship banking and include the adaptation of terms of lending by banks when borrower risk changes over time. The analysis is

base on randomly chosen credit files data from five leading German banks of two hundred small and medium-sized firms from the years 1992 to 1996 with an annual turnover between DM50 and 500 million. They use dummy variable in this study which equals one if the borrowers liabilities are backed by a guarantee of a parent company and zero otherwise. As the finding, this study provides evidence for the relation of loan terms to borrower risk and found that loan interest rate premiums and lines of credit are related to borrower credit ratings while collateral showed no clear relation.

Bystrom, Worasinchai and Chongsithipol (2005) apply the Merton (1974) framework and study the relationship between default risk and firm size, book-to-market ratio and stock returns during a severe crisis and tries to answer whether default risk is systematic or idiosyncratic. As the finding, there are significant increase in market based default probabilities around the crisis and a fairly slow return to pre-crisis levels. The first sector to suffer deterioration in creditworthiness was the sector of finance and securities firms and the worst effected sector at the peak of the Asian crisis was the building materials sector. There are further some indications of the most distressed firms being on average somewhat smaller than the least distressed, but only during the crisis. However, no significant evidence of the book-to-market ratio being related to the default risk in this particular market, However, in this sample the level of default risk of a firm does not seem to be able to explain the firm's subsequent realized returns at different horizons. Thus, reject the hypothesis that default risk is systematic.

Cheng and Ariff (2007) take a new approach using factors analysis to identify potential bank-relevant factors to examine if these factors in additional to earning are also correlated with abnormal returns of bank shares. Factors analysis is used to reduce 21 accounting and financial ratios into four factors, which were then input in the regression. The four broad classes of financial risk in managing banks included credit risk, liquidity risk and interest rate risk as well as capital risk which were mentioned above. Their results show high R-square in the regression between abnormal returns and (a) earnings change factor, which indicates a better fit than in studies of non-banks on the earning-to-price relation. Further evidence found is that (b) credit risk factor has significant information content beyond earnings change in the regression with abnormal returns of bank shares. The other three factors are not found to be significant.

Chen and Zhang (2007) study the effect of banking deregulation on credit risk by develops a simple theoretical model to show how removing entry restrictions increases banks' incentives to screen loan applicants while lending rates are driven lower. This paper tests if the impact of deregulation differs across banks of different sizes which are integrated to a much greater degree than is retail banking. This study applies dynamic linear regressions after comprehensive misspecification tests and all involved regressions run the pooled data by H-statistic, deregulation dummy and two-stage least squares estimation to avoid simultaneity. The pooled data groups from bank-level balance sheet data and macroeconomic data for the EU-15 countries. The result indicates that the continued increase in market concentration caused by merger and acquisition activities since the late 1990s is likely to decelerate the process for the EU to reap the benefits from enhanced competition. The result also suggests potential entry could produce competition pressure great enough to change domestic banks' behavior.

Garlappi, Shu and Yan (2008) study the relationship between default probability and stock returns. Using the market-based measure of Expected Default Frequency constructed by Moody's KMV and adapting the setting of the Fan and Sundaresan (2000) model that explicitly considers the bargaining game between equity-holders and debt-holders of a firm in financial distress; they obtain a theoretical relationship between expected returns and default probability that resembles the empirically observed pattern. Their analysis indicates that the relationship between default probability and equity return tends to be (i) upward sloping for firms where shareholders are not likely to extract significant benefits from renegotiation and (ii) humped and downward sloping for firms where shareholder advantage is strong.

Finally, in Hartmann (2010) reviews five new research papers, which shed light on various aspects of the relationship between market and credit risk and illustrated why they matter particularly for risk management, but also for financial supervision and regulation. He further recommended future research in bilateral interaction between market and credit risk to other trilateratal interaction. Therefore this paper study the valuation of bank stocks in response to earnings and the credit risks of banks in four countries of different in sizes and rating. We wish our finding will be able to generalize to all countries base on these four difference economies.

3. Research Design, Hypothesis and Data

3.1 Research Design

This research is designed to identify the impact of several factors, including risk factors, using 21 ratios computed from the financial statements of all ten banks over several years. The impact on bank shares – both in the direction and magnitude – of the

revaluation effect arising from earnings changes as they occur in the period 2000 to 2008.

There are several ways to calculate the unexpected returns, two of them are:

a) First, the return series are regressed against the lagged return series. Then the residual are used as an unexpected return. This method is commonly used in economics and finance.

b) Second, we take the difference in accounting return between current year and previous year, which is commonly used in accounting literature. In this study we adopt the second method.

Analysis of Abnormal Returns: Sharpe's (1963) Market Model as a standard general equilibrium relationship for asset returns is used. Abnormal returns (AR) are:

$$AR_{it} = R_{it} - [\alpha_i + \beta_i R_{mt}] \quad (1)$$

With $R_{it} = Ln (P_{it}/P_{i\,t-1})$ and $R_{mt} = Ln (I_t / I_{t-1})$. In addition to terms already defined, Ln is natural logarithm and i refers to market's composite index. The market parameters α_i and β_i are estimated by ordinary least square regression over trading periods, –71 months to –11 months (parameter estimation period) relative to the announcement month. The windows of analysis for the ARs are taken as 12 months. The windows of analysis are from the month of earnings announcements to 11 months prior to the announcements.

3.2 Analysis of Unexpected Annual Accounting Earnings

Unexpected annual earnings are computed using the naive expectation model, which assumes that the next period's expectation is simply the current period's annual earnings. This is also consistent with the design of the study to study the contemporaneous effect of price changes at a point in time.

Unexpected annual earnings (UEs) are computed using the naive model:

$$UE_{it} = E_{it} - E_{i(t-1)} \quad (2)$$

The unit normal variables are estimated as follows:

$$SUE_i = UE_i/\sigma_{(UEi)} \quad (3)$$

$\sigma_{(UEi)}$: standard deviation of UE

This transformation using standard deviation to normalize the variable mitigates the effect of changing variance or heteroscedasticity on the variables, and yields unexpected value of annual earnings variable adjusted for volatility differences, $\sigma_{(UEi)}$. This is the widely accepted method that is thought to result in robust estimates of test statistics.

Studies on returns-to-earnings relation test the coefficient in the regression analysis between the unexpected annual earnings as independent variables and abnormal return as the dependent variables. Typically, inferences regarding the information content of annual earnings are based on the significance of the slope coefficient (b) and the coefficient of determination or the explanatory (R^2) power of the model in the following linear estimation done cross-sectionally:

$$CAR_i = \delta + \gamma * SUE_i + \varepsilon_i \quad (4)$$

where,

CAR_i : is some measure of risk-adjusted return for security i over 12 months period t,

SUE_i : is a measure of standardized unexpected annual earnings, and

e_i : is a random disturbance term assumed to be normally distributed.

The slope coefficient of the regression, b, is called the earnings response coefficient (ERC).

3.3 Risk determinants factors.

Three econometrics problems need to be addressed before running the final model.

i. Multicolliniarity problem
ii. Autocorrelation problem
iii. Hetrodasticity problem

Multicolliniarity problem is needed to be solved before running the final model. There are large numbers of macro-economic explanatory variables identified in which some variables may be closely related. To minimize this problem, factor analysis was used to reduce the number of explanatory variables with maximum Eigen value.

This study uses twenty financial accounting/financial ratios calculated from the balance sheets information. The twenty ratios were re-grouped as factors using Principle component factor analysis.[3] The initial results from factor analysis show that six out of the twenty one financial ratios have Anti-Image Correlation of less than 0.5. Therefore only fourteen financial ratios are considered useful in the final factor analysis. The Kaiser-Meyer-Olkin Measure of sampling adequacy is between 0.706-0.735, which is greater than the recommended 0.6 and the Barlett's Test of Sphericity is highly significant (Sig=0.000)

The Anti-image Correlations of the fourteen financial ratios are greater than the recommended 0.5. These range from 0.611 to 0.820. Therefore these fourteen financial ratios were used in the final factor analysis.

Four factors that emerged as the likely factors to were determined using the criterion that Eigen values be greater than 1.0. Finally, the Provision for bad and doubtful debts/Income emerged as the most suitable ratios to proxy for credit risk.

[3] lists of the abbreviation and the definition of the twenty one financial ratios can be provided upon request.

The relation between abnormal returns as dependent variable and standardised unexpected earnings, and credit risk as independent variables is tested in the regression:

$$CAR_i = \delta_1 + \gamma_2 SUE_i + \theta_3 Cr_i + \varepsilon_i \quad (5)$$

where,

CAR_i : Cumulative abnormal returns over a 12 months window.

SUE_i : Standardized Unexpected Annual Earnings,

Cr : Credit risk factor, bad and doubtful debts/Income

Four regressions were performed according to the four countries selected:

The research question is whether the identified "accounting-credit risk factors" has information content over and above the information from earnings disclosures (SUE). The regressions use panel ordinary least square regression following Cheng and Ariff (2007) and Wooldridge (2001). As usually, this study expects the key factors to be significantly adding more information to the price determinants, although prior studies of non-bank firms showed no evidence of any effect from other than the earnings variable. Thus, the research question is again the original question addressed by the earlier contributors to the literature.

Provision for bad and doubtful debts/Income. This ratio is the measure of credit risk of a bank. The higher the provision, the lower is the credit risk, since the provision has covered for the loan loss. A bank that has a high provision of bad and doubtful debt yet still make the equivalent of earnings compare to another bank. The value of this bank will be intuitively more valuable. Therefore, this study expect a positive relationship between share price valuation and higher provision of bad and doubtful debt in respect to an unit increase in unexpected earnings.

3.4 Hypothesis

The major hypothesis in this study is that a strong relationship exists between risk-adjusted abnormal returns, which represent adjusted share price changes by investors, and the unexpected annual earnings changes. The null strategic hypothesis is:

Changes in stock prices are not explained/ determined as shown by the sign and the magnitude of the unexpected annual earnings changes in banks.

The null will be accepted if there is no significant relation between stock price changes and unexpected annual earnings changes, i.e. the t-statistic for γ_2 is insignificant. The second null hypothesis suggests that credit risk determinants – these are identified by the factor analysis uniquely in this study - in the returns-to-earnings relation is significant beyond that from the earnings.

Credit risk factors do not affect the returns-to-earnings relation.

The null will be accepted if the t-statistics for θ_3, is not significant. The model fit will be tested using the F-ratios while the size of the R-squared values may be examined to see if the banking sector study has higher values for the coefficient of determination than was the case in non-bank study in the same market.

3.5 Data

This study extends the prior concept to the four countries which including Australia, Korea, Malaysia and Indonesia,. The data resources are different for every unique country. However, all banks' data set was mainly accessed from the monthly closing prices, annual earnings and balance sheets information in the sources. Bankscope financial data and in the Stock Exchange Central; the financial information from the Company Annual Reports; and the annual earnings announcements obtained from Stock Exchange Central web-site. All banks' data set is related to the research period of year 2000 to 2008.

The Australia data set was mainly accessed from the monthly closing prices, annual earnings and balance sheets information in the sources: Bankscope financial data and in the Australia Stock Exchange (ASX); the financial information from the Company Annual Reports; and the annual earnings announcements obtained from ASX web-site. Data relate to the period 2000 after the deregulation of banks following the Wallis' report, to the year 2008. The population consists of 10 listed and traded banks over the test period. These banks are Commonwealth Bank of Australia (CBAX)， National Australia Bank(NABX)，Australia and New Zealand Banking Group (ANZX)， Westpac Banking Corporation (WBCX)，Bank of Queensland Limited (BOQX)，Bendigo Bank (BENX)，Macquarie Bank Ltd (MBL)，Adelaide Bank Ltd .(ADBX)，St. George Bank Limited (SGBX) and Suncorp-Metway Ltd (SUNX)，Imposing the selection criteria led to removal of rights, bonus, and special issue announcements in order to obtain only those disclosures purely relating to the study, and nothing else. Confounding effects from other events are not present in this study. In performing outliers test, cases with residual greater than three standard deviation values were identified and excluded from the final regression.

For Korea, The data set is a combination of 10 banks which included investment banks and local commercial banks. The monthly closing prices are sourced from Bankscope financial data and the Korea Stock Exchange (KSE).

The data set for Malaysia was mainly organised from the monthly closing prices, annual earnings and balance sheets information in the following sources: Bankscope financial data and in the Kuala Lumpur

Stock Exchange (KLSE); the financial information from the Company Annual Reports and/or the KLSE Annual Company Handbooks; and the annual earnings announcements obtained from Investors Digest and *KLSE Daily diary*. Data relate to the period over 2000-2008, after the merger of the financial institutions into 10 banking groups. The population consists of 10 listed banks with the earnings disclosures per year. These banks are Affin Holding Berhad, AMMB Berhad, Commerce Assets Berhad, EON Capital Berhad, Hong Leong Bank Berhad, Maybak Bank Berhad, M.Plant Berhad, Public Bank Berhad, RHB Capital Berhad and Southern Bank Berhad. Imposing the selection criteria led to removal of right, bonus, outliers and special issue announcements in order to remove confounding effects of these non-earnings disclosures. The final sample consists of 43 firm-years for analysis.

Table 1: List of Banks in Australia, Korea, Malaysia and Indonesia

	Australia	Korea	Malaysia	Indonesia
1	Commonwealth Bank	Daegu Bank Limited	Affin Holding Berhad	Bank Artha Graha International
2	National Australia Bank	Industrial Bank of Korea	AMMB Berhad	Bank Bumiputera Indonesia
3	Australia and New Zealand Banking	Jeju Bank-Cheju bank	Commerce Assets Berhad	Bank Central Asia
4	Westpac Banking	Jeonbuk Bank	EON Capital Berhad	Bank Century
5	Bank of Queensland Limited	Kookmin bank	Hong Leong Bank Berhad	Bank Danamon Indonesia
6	Bendigo Bank	Korea Exchange Bank	Maybak Bank Berhad	PT Bank CIMB Niaga
7	Macquarie Bank Ltd	Pusan Bank	M.Plant Berhad	Bank International Indonesia
8	Adelaide Bank Ltd	Meritz Investment Bank	Public Bank Berhad	Bank Mayapada International
9	St. George Bank Limited	Shinhan Financial Group	RHB Capital Berhad	Bank Negara Indonesia
10	Suncorp-Metway Ltd	Woori Financial Group	Southern Bank Berhad	Panin Bank-Bank Pan Indonesia
11				Bank Permata
12				Bank Swadesi
13				Bank UOB Buana

List of commercial banks in Indonesia is cover for 13 commercial banks. The data set is sourced from Bankscope financial data and the Indonesia Stock Exchange (IDX) These banks are listed in Table 1.

All the banks' data imposing the selection criteria led to removal of rights, bonus, and special issue announcements in order to obtain only those disclosures purely relating to the study, and nothing else. Confounding effects from other events are not present in this study. In performing outliers test, cases with residual greater than three standard deviation values were identified and excluded from the final regression.

Table 2: The Total assets, Shareholder equity, Loans, and Deposits of 10 Australia Commercial Banks (In ASD Million) in 2007

	Bank	**Total Asset**	**Equity**	**Loans**	**Deposit**
1	NABX	484,785	27,804	283,777	222,277
2	CBAX	369,103	20,835	259,176	173,227
3	ANZX	335,771	19,872	268,845	204,794
4	WBCX	299,578	14,186	234,484	167,741
5	SGBX	107,002	5,343	81,516	91,647
6	MBL	106,211	4,489	34,999	9,267
7	SUNX	57,369	4,433	39,633	27,683
8	ADBX	26,211	850	23,758	24,541
9	BOQX	15,797	690	10,821	9,950
10	BENX	15,196	900	12,437	13,600
	Total	1,817,023	99,402	1,249,445	944,726

4. Results And Discussion

4.1 Descriptive Statistics

Table 2 provides summary statistics on total assets, shareholder equity, loans and deposits of the 10 listed Australia commercial banks. The assets of the banks vary from AUD 15 billion in Bendigo Bank(BENX) to AUD 484 billion in National Australia Bank(NABX).The total assets of all the 10 commercial banks worth AUD 1817 billion in year 2006. Table 1, column 4,5 and 6 show the shareholders' equity, loans and deposits for the Australia commercial banks. As expected the NABX has the higherst shareholders equity, loan and deposit. The average shareholder to total assets ratio is 5.4%.. The deposit to loan ratio is 75.6%. The total incomes of the commercial banks vary from AUD 1.1 billion in Bendigo Bank (BENX) AUD 32.4 billion in National Australia Bank(NABX). The average total income of commercial banks of Australia is AUD 13 billion over average assets AUD 181.7 billions. The average return of total income/total asset is 7.2 percent, which must be noted as among the highest in the world.

For 10 listed Korea commercial banks, the summary statistics on total assets, shareholder equity, loans and deposits show in Table 3. The difference between the largest and the smallest banks in term of total assets of the banks is KRW 222,556 billion and it seen greater then the different gap for other banks in this study due to huge vary on the largest bank and smallest bank. The total assets of the largest bank is KRW 223,044 billion in Kookmin Bank (KB) which is considered owning larger total assets among all the largest banks in studied countries after convert the figure into US Dollar. The total assets of the smallest

bank is KRW 488 billion in Meritz Investment Bank (MIB) and the reported size of total assets is smaller than the smallest bank in Thailand, ACL Bank. The total asset of all the 10 commercial banks is worth KRW 517,001 billion in year 2007. The column 4, 5 and 6 in the Table 2 provide the shareholders' equity, loans and deposits for each selected Korea commercial banks. The KM as usual has the highest shareholders' equity, loans and deposits. The average shareholder to total assets ratio is 7.25%. The condition of the loan in Korea is differing with Thailand; total loan offered by banks is more than the deposit taken from depositors. This cause the loan to deposit ratio is 111%. The total incomes of the commercial banks vary from KRW 14 billion in Jeju Bank-Cheju Bank (JBCB) to THB 2,762 billion in KB. The average total income against total assets of commercial banks of Korea is KRW 7,105 billion over total assets KRW 712,549 billion is show as 0.01% which is better than the rate in other banks.

TABLE 3: the total assets, Shareholder equity, Loans, and Deposit of 10 Korea Commercial Banks (In KRW Billion) in 2007

Bank	T.Asset	Equity	Loans	Deposit
1. KB	223,044	16,107	170,109	158,5160
2. SFG	220,876	18,174	146,478	135,939
3. IBK	122,223	6,862	91,067	64,124
4. KEB	69,441	6,379	1,867	1,625
5. PB	27,298	1,472	17,366	20,474
6. DGB	24,964	1,402	798	325
7. WFG	15,287	716	9,501	11,040
8. JB	6,153	322	4,084	5,096
9. JBCB	2,772	144	1,943	2,254
10. MIB	488	99	227	240
Total	712,549	51,681	443,444	399,637

(Exchange rate: 1 KRW = 0.0006873USD)

Table 4 provides summary statistics on total assets, shareholder equity, loans and deposits of the 10 listed Malaysia commercial banks. The assets of the banks vary from RM256 billion in Maybank to RM36 billion in Alliance Bank. The total assets of all the 10 commercial banks worth RM 1,004.5 billion in year 2006. Table 1, column 4,5 and 6 show the shareholders' equity, loans and deposits for the Malaysia commercial banks. As expected the Maybank has the highest shareholders equity, loan and deposit. The average shareholder to total assets ratio is 7.5%.. The deposit to loan ratio is 75%. The total incomes of the commercial banks vary from RM 14 billion in Maybank to RM 1.4 billion in Alliance bank. The average total income of commercial banks of Malaysia is RM 6.1 billion over average assets RM 100.4 billions. The average return of total income/total asset is 6 percent, which is lower than Australia Banks

Indonesia is the only selected country with more listed commercial bank under this study due to rapidity developing in banking sector. Table 5 shows the summary statistics on total assets, shareholder equity, loans and deposits of the 13 listed Indonesia commercial banks. The difference between the largest and the smallest banks in term of total assets of the banks is Rp 217,033 billion. The total asset of the smallest bank is Rp 975 billion in Bank Swadesi (BSWD) which also is the smallest banks among all the commercial banks in this study. The total asset of the largest bank is Rp 218,005 billion in Bank Central Asia (BBCA). The total asset of all the 13 commercial banks is worth Rp 748,091 billion in year 2007. The column 4, 5 and 6 in the Table 5.3 provide the shareholders' equity, loans and deposits for each selected Indonesia commercial banks. The BBCA expectedly has the highest shareholders' equity, and deposits but the loan amount is slightly lower then the second largest banks in Indonesia which is Bank Negara Indonesia (BBNI). The average shareholder to total assets ratio is 10.45% and it's close to the ratio in Thailand. The loan to deposit ratio is 60.78% which is lower compared to other countries. The total incomes of the commercial banks vary from Rp 8.3 billion in Bank Swadesi (BSWD) to Rp 4,489 billion in Bank Central Asia (BBCA). The average total income against total assets of commercial banks of Thailand is Rp 10,718 billion over total assets of Rp 748,091 billion. The average return of total income/ total asset is noted at 1.43%, which is considered the highest ratio compare with other commercial banks in this study.

TABLE 4: the total assets, Shareholder equity, Loans, and Deposit of 10 Malaysian Banks (In RM billion) in 2007

	Bank	Total Asset	Equity	Loans	Deposit
1	Affin	36.8	4,2	18,8	23,4
2	AMMB	78,6	4,8	51,0	43,7
3	Alliance	26,3	1,9	16,8	18,8
4	Commerce	182,8	16,8	102,2	121,0
5	EON	41,1	3,1	29,0	27,9
6	HongLeong	71,4	4,6	31,7	49,4
7	Maybank	256,6	19,8	159,9	175,3
8	Public	174,1	9,9	105,3	136,6
9	RHB	105,1	7,0	56,2	64,2
10	Southern*	31,4	3,4	43,9	50,1
	Total	1,004,6	76,0	615,2	710,8

(Exchange rate: 1 RM = 0.2631 USD), * Southern bank were taken over by CIMB in 2005.

TABLE 5: the total assets, Shareholder equity, Loans, and Deposit of 13 Indonesia Commercial Banks (In Rp Billion) in 2007

Bank	T.Asset	S. Equity	Loans	Deposit
1. BBCA	218,005	20,441	82,077.	191,768
2. BBNI	183,341	17,247	83,214	151,460
3. BDMN	89,409	11,170	51,807	68,482
4. BNII	55,148	5,519	32,336	42,887
5. BNGA	54,885	5,206	40,675	47,115
6. PANIN	53,470	8,319	28,867	40,093
7. BNLI	39,303	3,962	25,289	31,076
8. BBLA	18,260	3,557	12,459	14,329
9. BCIC	14,509	1,160	3,918	10,980
10. INPC	11,282	631	7,348	9,312
11. BABP	6,346	536	4,329	5,698
12. MAYA	3,155	317	2,025	2,516
13. BSWD	972	116	440	843
Total	748,091	78,187	374,791	616,564

(Exchange rate: 1 Rp = 0.00008270 USD)

Table 6 shows the comparison of the bank sizes in four countries, Australia banks has a mean total assets of USD 145 Billion as compare to USD 48.97 in Korea, USD 26.44 in Malaysia and USD 4.76 billion in Indonesia, Therefore on average Australia banks is about 30 times larger than the Indonesia banks

TABLE 6; Comparison of Total Assets between Australi,a Korea, Malaysia and Indonesia Bank (In USD Billion)

	Australia	Korea	Malaysia	Indonesia
Mean	145.36	48.97	26.44	4.76
Median	85.29	17.96	19.74	3.25
Stand Dev	138.76	60.25	20.72	5.71
Minimum	12.16	0.34	6.95	0.08
Maximum	387.83	153.30	67.54	18.03
Count	10	10	10	13

Results

Table 7 reports the regression results of the returns-to-earnings relation of the banks in the test period. The regressions are between risk-adjusted cumulative abnormal returns as dependent variable and the standardized unexpected annual earnings, the credit risk factor as the independent variables. The independent variables were regressed one by one to estimate the return-to-earnings relation. The results are shown in the eight regression models.

(i) Returns-to-earning relation for banks

The regression result of the simple regression for Australia, Korea, Malaysia and Indonesia are report in Model A1, K1, M1 and I1. The results indicate that the coefficient for SUE is positive and with a value of 0.0342, 0.065, 0.065 and 0.198 for Australia, Korea, Malaysia and Indonesia respectively. Their t-statistics are of 2.91, 2.138, 3.847 and 2.565 respectively, which are all significant at least at 0.05 level. These findings are similar to the results reported in many research for non-banks. The R-square are 0.079, 0.059, 0.065 and 0.066 for Model A1, K1, M1 and I1 respectively. Therefore, these regressions for banks show that banks have strong returns-to earnings relations. In fact, these evidences suggest that the investors revalued the bank share prices in response to earnings changes much more strongly than they did in the cases of non-banks as shown in this original returns-to-earnings relation. Many researches for non-banks earnings response models only obtain less than 5 percent in the R-square values (see Cheng, Shamsher, Ariff 2001)

(ii) Credit Risk determinants of the returns-to-earnings relation for banks

Australia

The credit risk factor was subsequently added into the regression of risk-adjusted cumulative abnormal returns and standardised unexpected annual earnings. Table 7, models A2 shows that the coefficients for SUE variables is highly significant again. These findings are consistent with the previous evidences from the institutionally developed capital markets on non-banks studies. Model A2 indicates that the coefficient of the credit risk factor has a t-statistic of 2.39 and a p-value of 0.019, which is significant at 0.05 level. Consistent with theory, the coefficient of the credit risk factor has a positive sign. The positive sign for the coefficients of the credit risk factor shows that the higher the provision for default the lower the bank credit risk. In other words, for banks having the same unexpected earning and the one that has higher provision for default, the higher is the investors' valuation of the bank share prices in response to the earnings changes. Gibson (2000) finds that banks taking the largest write-offs turn out later to be the strongest banks, with fewest restructured loans. The adjusted R-square for Model 2 is 0.093, which is marginally higher than 0.079 in Model A1. Therefore, this indicates that the credit risk factor has information content beyond unexpected annual earnings. The F-statistics is also more significant for model A2 than model A1.

Korea

The credit risk factor was subsequently added into the regression of risk-adjusted cumulative abnormal returns and standardized unexpected annual earnings. The result exhibits two models. In table 6 the models K1 and K2, are exhibit that the two coefficients for SUE variables are significant and positive related to CAR at the level of 0.05. These findings are consistent with the Australia study in the

last section. The Models K2 exhibits the credit risk factor again has positive sign. The positive sign for the coefficients of the credit risk factor shows the higher the bank credit risk factor means that the banks have a higher provision for default. In other words, for banks having the same unexpected earning and the one that has higher provision for default, the higher is the investors' valuation of the bank share prices in response to the earnings changes.

Malaysia

The credit risk factor was subsequently added into the regression of risk-adjusted cumulative abnormal returns and standardised unexpected annual earnings. Table 7 shows that the coefficients for SUE variable in models M1 and M2 are highly significant again. These findings are consistent with the previous evidences from the institutionally developed capital markets of Australia and Korea. Model M2 indicate that the coefficient of the credit risk factor has a t-statistic of 2.22 and a p-value of 0.032, which is significant at 0.05 level. Consistent with theory, the coefficient of the credit risk factor again has a positive sign. Further examining the coefficients of the credit risk factors indicates that in Model M2, the coefficient for the credit risk factor has a t-statistic of 2.064, and a p-value of 0.046.

Indonesia

Similar to the previous three countries' regression models. The credit risk factor was subsequently added into the regression of risk-adjusted cumulative abnormal returns and standardized unexpected annual earnings. The result exhibits two models from credit risk factors in table 4 and the models I1 ans I2 are exhibit that all the coefficients for SUE variables are significant and positive related to CAR. This finding is consistent with the study of Australia, Korea and Malaysia study on factor-analyses determinants which affected the abnormal return on the earlier three countries data. The Models I2 exhibit the credit risk factor has positive sign against the CAR which is similar with the Australia, Korea and Malaysia results.

The positive sign for the coefficient of the credit risk factor shows that the higher the bank credit risk factor means that the banks have a higher provision for default. In other words, for banks having the same unexpected earning and the one that has higher provision for default, the higher is the investors' valuation of the bank share prices in response to the earnings changes. The adjusted R-square for Model I2 is 0.101, which is marginally higher than 0.066 in Model 1. Therefore, this indicates that the credit risk factor has information content beyond unexpected annual earnings. The F-statistics is also more significant for model I2 than model I1.

Further examining the coefficients of the credit risk factor indicates that in all these Models, the coefficient for the credit risk factor has a t-statistic significant at 0.05 level. These results suggest that, within 95 per cent confidence, the coefficient for credit risk factor is greater than being zero. Therefore, credit risk is a factor to be taken as indicating as having a directional and also a magnitude effect after the earnings variable. These findings are consistent with evidence in Gibson's (2000) study. Gibson (2000) studied the information content of bank loan loss disclosures and found evidence that is consistent with a signaling model, that loan loss provision has information content. Loan loss ratio in this study in Gibson (2000) is Provision for Doubtful Debts/Total Assets, which is a factor in the credit risk measurement (Hogan et. al, 2004). The higher the loan loss provision, the higher the investors value the stock barring the same earnings.

The results obtained from the above analysis of the four countries. These findings are also consistent with the previous theory in existing studies from Garlappi, Shu, Yan (2008), Abid and Naifar (2005) and Kobayashi and Ikede (2007). They investigate how the share prices react to changes in regulations announced for credit risk to the market place by regulators. Their findings show the relationship between the stock return and credit risk is upward sloping where shareholders are not likely to extract significant benefits from renegotiation. The findings here that are performed on four countries of different sizes and ratings show that credit risk are indeed effecting how the investors value bank shares.

There is no econometric problem in this study. The data used are pooled data, the D-W statistics lies between 2.52 and 2.89, therefore these data do not have auto-correlation problem. There is no serious multicollinearity problem since all the conditional index is less than 20. The coefficients reported are from Eviews, which provides for tests (White, 1980) and corrections for heteroscadasticity. Hence, there is no econometric problem and the residuals do not display serial correlation, multicollinearity or heteroscadasticity. Given that these parameters are estimated with no serial correlations, multicollinearity and no heteroscadasticity, one could suggest that results provide robust estimates of the parameters.

TABLE 7: Regression Results For Returns-to-Earnings Relation For Selected Banks In Asia Pacific From Period 2000 to 2007. Regression Model: $CAR_i = \delta_1 + \gamma_2 SUE_i + \theta_3 Cr_i + \varepsilon_i$; Dependent Variable: Cumulative Abnormal returns (CAR).

Independent Variable	Constant	SUE	Credit Risk	Adj R-sq.	F-Stat	VIF	Durbin-Watson
l	ä1	ã2	è3				
Australia							
A1	-0.024	0.034		0.079	3.708	1.00-1.00	1.988
	(-2.25)	(2.91)			(0.011*)		
	(0.027*)	(0.005**)					
A2	-0.074	0.0389	0.023	0.093	5.167	1.03-1.03	1.899
	(-3.53)	(3.45)	(2.39)		(0.008**)		
	(0.001**)	(0.001***)	(0.019*)				
Korea							
K1	0.66	0.065			4.57		
	(1.098)	(2.138)			(0.037)*		
	(0.277)	(0.037)*		0.059		1.00-1.00	2.895
K2	0.029	0.072	0.116		5.843		
	(0.529)	(2.595)	(2.200)		(0.005)**		
	(0.599)	(0.012)*	(0.032)*	0.15		1.00-1.00	2.525
Malaysia							
M1	-0.004	0.065		0.065	14.80	1.00-1.00	1.876
	(-0.141)	(3.847)			(0.000***)		
	(0.889)	(0.000***)					
M2	0.002	0.053	0.061	0.133	10.57	1.10-1.10	1.994
	(0.082)	(3.165)	(2.220)		(0.000***)		
	(0.935)	(0.003**)	(0.032*)				
Indonesia							
I1	0.024	0.198		0.066	6.577	1.00-1.00	2.163
	(0.306)	(2.565)			(0.012)*		
	(0.760)	(0.012)*					
I2	0.034	0.191	0.164	0.101	5.257	1.00-1.00	2.355
	(0.44)	(2.439)	(2.077)		(0.007)**		
	(0.661)	(0.017)	(0.041)*				
Independent Variable	**Constant**	**SUE**	**Credit Risk**	**Adj R-sq.**	**F-Stat**	**VIF**	**Durbin-Watson**

Note: significant at * (0.05), ** (0.01) and ***(0.001)

Conclusion

The main purpose of this paper is to study the earnings response coefficients for four Asia Pacific countries' commercial banks and the effect of credit risks on the earnings response. These countries were chosen base on their different sizes and sovereign rating. The findings in this study for each country is providing new evidences in different and unique way related to their particular historical background and authorities' decision on regulatory setting of bank managements. However, the result obtained for these were similar even though their historical flow of the independence and government regulation on banking are different. The four countries are having different in their history, economy, and natural resources and has been influenced by different periods of rapid economic change.

According to the result for all these countries, the outputs show the credit risk has the information content beyond earnings. This result is consistent with the finding in many other studies which found significant relationship on the CAR and the credit risk with a positive sign. The result is consistent with existing literature and study from Garlappi, Shu and Yan (2008), Abid and Naifar (2005) and Ikede and Kobayashi (2007). They investigate how the share prices react to changes in regulations announced for credit risk to the market place by regulators. Their findings show the relationship between the stock return and credit risk factor is upward sloping where shareholders are not likely to extract significant benefits from renegotiation. Generally, the provision of bad and doubtful debt (credit risk factor) in the existing practical literature shows positive relationship among the provision of bad and doubtful debt (credit risk factor) and stock abnormal returns. This positive sign is plausible, because with a higher provision for bad and doubtful debts/Income and yet

achieving the same amount of earnings mean a better operated banks than the other banks.

However, the credit risk is not just subject to financial institution and banking, the risk also play important role in other parties such as investors, fund manager, insurance companies and even non-bank firms. Fund managers and investors are directly exposed to credit risk in their fixed-income investments. Insurance companies are exposed to it through their credit investments and credit guarantees. Companies are exposed to the risk that trading partners, distributors or suppliers may fail to live up to critical obligations.

Acknowledgement:

We wish to thank Arif and Wei Nei for their advice and help in completing this paper. All errors are ours.

Corresponding Author:
Dr. Cheng Fan Fah,(Submitting Author)
Associate Professor
Faculty Economics and Management,
University Putra Malaysia,
43400 UPM, Serdang, Selangor, Malaysia.
Ph (603)-89487706; Fax: (613)-8948-6188,
E-mail: chengfanfah@yahoo.com

References

1. Abid, F and N. Naifar. The impact of stock returns volatility on credit default swap rates: a copula study, International Journal of Theoretical and Applied Finance 2005; Vol.8; No.8: 1135-115.
2. Bystrom H., Worasinchai L. and Chongsithipol S. Default risk, systematic risk and Thai firms before, during and after the Asian crisis. Research in International Business and Finance 2005; 19: 95–110.
3. Chen P. and Zhang G. How do accounting variables explain stock price movements? Theory and evidence. Journal of Accounting and Economics 2007; 43: 219-244.
4. Cheng, F.F. and Ariff, Abnormal returns of bank stocks and their factor-analysed determinants. Journal of Accounting, Business and management April 2007; Vol 14: 1-15.
5. Cheng,F.F., Ariff and Shamsher. "Accounting earnings and share revaluation: Further exploration." Capital Market Review 2001; Vol 9, 21-48.
6. Hartmann, Philip. Editorial, Interaction of Market and Credit Risk. Journal of Banking & Finance 2010; 34: 697-702
7. Jarrow, R., and Turnbull, S. The intersection of Market and Credit Risk. Journal of Banking and Finance 2000; 24: 271-299.
8. Fan Hua and Sundaresan, Suresh M. Debt Valuation, Renegotiation, and Optimal Dividend Policy, Review of Financial Studies 2000; vol. 13(4): 1057-99.
9. Finn and Frederick, W.T. Finn and J.B. Frederick, Managing the margin. ABA Banking Journal 1992; 84 (1992): 50–53
10. Garlappi. L, Shu. T. and Yan H. Default risk, shareholder advantage and stock returns. Review of Financial Studies 2008; Vol. 6: 2743-2778.
11. Gibson, S. On the Information Content of Bank Loan-Loss Disclosures: A Theory and Evidence from Japan. International Review of Finance 2000; 1;1 :53-80.
12. Ho, T. S.Y. and Saunders, A. The Determinants of Bank Interest Margins: Theory and Empirical Evidence. The Journal of Financial and Quantitative Analysis 1981; 16, Issue 4: 581-600.
13. Kobayashi, Takao and Ikeda, Ryoichi. Why some Distressed Firms Have Low Expected Returns. Centre of International research on Japanese Economy, CIRJE, Faculty of Economics, University of Tokyo. CIRJE F-Series 2007: CIRJE-F-504,
14. Lazarus Angbazo. Commercial bank net interest margins, default risk, interest-rate risk, and off-balance sheet banking. Journal of Banking and Finance 1996; 21: 55-87.
15. Machauer A. and Weber M. Bank behavior based on internal credit ratings of borrowers. Journal of Banking & Finance 1998; 22: 1355-1383.
16. Merton, R. On the pricing of corporate debt: the risk structure of interest rates. Journal of Finance 1974; 2 (2): 449–470.
17. Sharpe, W.F. Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk. Journal of Finance 1964; Vol.19 (3): 425-442.
18. White, H. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. Econometrica 1980: 48, 4, 817-838.
19. Wong K. P. On the determinants of bank interest margins under credit and interest rate risks. Journal of Banking and Finance 1996; 21: 251–271.
20. Wooldridge J.M., Econometric Analysis of Cross Section and Panel Data. The MIT Press. 2001; Cambridge, London, England.

3/30/2014