

**ERASMUS UNIVERSITY ROTTERDAM
ERASMUS SCHOOL OF ECONOMICS
MSc Economics & Business
Master Specialization Financial Economics**

**M&A and Shareholder Wealth in Financial
Institutions in the Asia-Pacific Region:
An Event Study**

Author: W.D. op de Hoek
Student number: 280265
Thesis supervisor: A. Lizyayev MSc
Finish date: April 2010

ACKNOWLEDGEMENTS

I would like to thank Mr. Andrey Lizyayev for acting as my supervisor in the writing of this thesis. Also, I would like to thank Liz Watkins, my mother, for her support over the course of my studies and the writing of this thesis.

NON-PLAGIARISM STATEMENT

By submitting this thesis the author declares to have written this thesis completely by himself/herself, and not to have used sources or resources other than the ones mentioned. All sources used, quotes and citations that were literally taken from publications, or that were in close accordance with the meaning of those publications, are indicated as such.

COPYRIGHT STATEMENT

The author has copyright of this thesis, but also acknowledges the intellectual copyright of contributions made by the thesis supervisor, which may include important research ideas and data. Author and thesis supervisor will have made clear agreements about issues such as confidentiality.

Electronic versions of the thesis are in principle available for inclusion in any EUR thesis database and repository, such as the Master Thesis Repository of the Erasmus University Rotterdam

ABSTRACT

This study presents an event study on and around merger announcement dates in the financial sector of the Asia-Pacific region. Findings include significantly positive abnormal returns to bidders in the period of days [-5,0] in relation to merger announcement and significantly positive abnormal returns to targets in various event windows. To analyze the perception of investors of the merger plans as a whole, the weighted combined merger revaluations are calculated. Results include significantly positive weighted combined merger revaluations for days [-5,0]; investors perceive the merger plans as favorable projects. A risk analysis comparing bidders' stock of a period of days [-300,-51] in relation to merger announcement to a period of days [+51,+300] in relation to merger consummation does not reveal any significant changes in both total relative risk and systematic risk. Cross-sectional analysis reveals no significant size effects in regressions with bidder and target abnormal return and weighted combined merger revaluation serving as dependent variables. Significant coefficients are found for target prior profitability and for bidder and target leverage.

Keywords:

M&A, event study, cluster analysis, financial institutions, market model parameters

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	2
ABSTRACT.....	3
TABLE OF CONTENTS.....	4
LIST OF TABLES.....	5
LIST OF FIGURES.....	5
CHAPTER 1: Introduction.....	6
CHAPTER 2: Literature Review.....	9
CHAPTER 3: Data.....	18
CHAPTER 4: Methodology.....	26
CHAPTER 5: Empirical Results.....	34
CHAPTER 6: Conclusions.....	44
REFERENCES.....	46
APPENDIX.....	49

LIST OF TABLES

Table 3.1: Day counting conventions.....	22
Table 3.2: Group 2 clusters.....	24
Table 3.3: Descriptive statistics of control variables.....	25
Table 5.1: (Cumulative) abnormal returns.....	35
Table 5.2: Means of (cumulative) abnormal returns compared.....	36
Table 5.3: Weighted combined merger revaluation.....	37
Table 5.4: Risk analysis.....	39
Table 5.5: Cross-sectional analysis.....	41

LIST OF FIGURES

Figure 3.1: Elbow method.....	23
Figure 3.2: Dendrogram for Group 2.....	23

CHAPTER 1: Introduction

As the Economist Intelligence Unit, a think tank, reported in February 2010, two-thirds of respondents in a survey of over a thousand executives from all over the world believe that the global recession (sparked by the housing crisis in the United States in 2007) has accelerated the shift of economic activity towards Asia¹. Indeed, the Asia-Pacific region has grown considerably in economic importance over the last couple of decades. The Asia-Pacific region is economically very diverse. It features highly developed countries such as Singapore with an annual GDP per capita of USD 34,346 together with countries still in the very early stages of development, such as Cambodia, with an annual GDP per capita of USD 782². Year on year figures show continued expansion in spending.

A more developed economy goes hand in hand with a more advanced banking system. Financial institutions have benefited from increasingly rich populations and, while most populations in the developed world are becoming ‘over-banked’, the Asia-Pacific region has plenty of room left to grow. Emerging Asia in particular still shows a low level of banking product penetration. We see, for example, in 2008 that only 40 percent of Indonesian adults had a bank account. According to a study conducted by Accenture, a consultancy firm, banks in the Asia-Pacific region showed an average annual asset growth between 2001 and 2007 of 13.4 percent; this study also reveals that 96 percent of Asian banks consider geographic expansion a very important part of their strategy³. One of the most important methods used for this geographic expansion is the exploration of markets through mergers and acquisitions. Also, with the slow but steady pace of reform in the region, many Asian governments are loosening restrictions on foreign ownership, with the result that cross-border M&A activity is slowly picking up here as well.

M&A are very popular across industries and there are some clear benefits to targets. Bidders often pay a hefty premium, which directly translates into abnormal returns to the stockholders of the target. Advantages to bidders are less clear cut. While the stockholders of the targets normally benefit with high prices for their shares, it is not uncommon for the stockholders of the bidders to lose wealth. Arguments often heard in favor of acquiring another company include the creation of economies-of-scale. The newly created entity can gain in efficiency by the elimination of duplicate functions resulting in cost cutting. Another motive can be the improvement of the target’s management. Poorly performing firms in an industry often fall prey to being acquired, because other players in the market expect that with new management, profitability will improve. Another potential advantage of M&A is the capturing of tax benefits. This can be achieved for instance by increasing leverage through the acquisition of highly

¹ Economist Intelligence Unit (2010): The big tilt: the rise of the East and what it means for business

² 2009 data from the International Monetary fund

³ Gautheron (2008): The rise of the Asian banking powerhouses

leveraged companies and in this way obtaining bigger tax shields. However, many M&A deals are said to be done out of motives of prestige, power, empire building and hubris. Managers are often over-confident when it comes to their skills to turn a poor performer around. Sometimes, managers with a lot of free cash at their disposal and without any profitable investment opportunities would rather acquire other companies than pay out cash in the form of dividends, because this lowers the value of assets under the manager's control. In addition, the costs involved in a merger, caused by the need for monitoring of the target by the bidder and the merging of two company cultures into one, are often underestimated.

Ever since the 1980s, the Western world has seen widespread consolidation within its financial institutions. M&A activity among banks first started to be seen on a regular basis in the American banking market. European banks started to follow on a large scale during the 1990s. Comparing studies analyzing banking M&A in the American market to those analyzing M&A in Europe has shown that findings in one market setting cannot simply be transferred to another. For example, Houston & Ryngaert (1994) find negative abnormal returns concerning weighted combined merger revaluation in the United States, while Cybo-Ottone & Murgia (2000) find significantly positive weighted combined merger revaluations in European banking. The only finding that does seem to hold across markets reveals that targets always seem to outperform bidders in abnormal return surrounding merger announcement. As M&A become more prevalent among Asian financial institutions, it is interesting to examine the effects these M&A have had on the shareholder wealth and bank risk of the banks involved. This study investigates abnormal returns surrounding M&A announcement dates in the Asia-Pacific region. In other words, how are M&A plans perceived by investors in the Asia-Pacific markets and can M&A be expected to create wealth or do they destroy it? What information does a merger announcement contain in isolation? Other than a study on a rare forced merger scheme in the banking industry in Malaysia (Chong et al, 2006), no other event studies have been conducted on this subject matter in this part of the world.

This study analyzes a sample of 51 M&A deals in the financial sector in the Asia-Pacific region that announced their deal between 1999 and 2007. A cluster analysis on the excess returns performed over a period of one year pre merger, groups together all banks in the sample that are perceived as similar. These entities should be exposed to similar risk. This way, the sample can be divided into two sub samples. One sub sample is created consisting of focusing mergers (firms merging within clusters) and another sub sample is created of diversifying mergers (firms merging across clusters). Subsequently, an event study is performed on all (sub) samples, constructing and analyzing abnormal returns to determine the effect the merger announcements have on the shareholder wealth of the stockholders of the financial institutions involved. Results to the stockholders of bidders are compared to the results to the stockholders of targets and results on focusing events are compared to those of diversifying events. To discover whether the

investors in the market value M&A deals positively, the weighted combined merger revaluation is also calculated. Because of the smaller sample size of the diversifying sub sample, a non-parametric test is added to the analysis of this sub sample in the form of a Wilcoxon Signed-Rank test. This serves as a robustness test for results. In addition, risk effects surrounding banking M&A are analyzed, comparing a period before merger announcement to a period after merger consummation. A distinction is made between the total relative risk and the systematic risk in the stock under investigation. To analyze cross-sectional variation among results, control regressions are run with the abnormal returns and revaluations serving as dependent variables.

This study finds significant positive abnormal returns for certain periods for not only target shareholders, but also for bidders. The abnormal returns to targets, however, are greater in magnitude than the abnormal returns to bidders. There are no significant differences between the focusing and diversifying subgroups. The merger plans as a whole are also perceived as positive by the market, focusing events being preferred above diversifying ones. No significant risk changes are found post merger compared to pre merger. The results of the cross-sectional analysis reveal important roles for prior target profitability and bidder and target leverage. Results of this study are consistent with existing literature that targets perform better than bidders in terms of abnormal return surrounding merger announcements. The finding of significantly positive abnormal returns to bidders is however surprising, and has not been found in literature to date on this topic.

The remainder of this paper is constructed as follows. The following section contains a survey of the existing literature on issues surrounding M&A in the financial industry and event studies in particular. Chapter 3 describes the sample selection and details the clustering process. Chapter 4 presents the methodological aspects associated with this paper after which in Chapter 5 the results found are reported and interpreted. Chapter 6 concludes.

CHAPTER 2: Literature Review

In the USA, merger activity in the banking industry exploded after 1981. This increase was the result of the gradual liberalization of many regulations imposed on the banking industry with respect to restrictions on branching in this country, traditionally averse to large institutions. The first big merger wave in the banking industry reached its peak in the second half of the 1980s and by the year 1990 all but four states allowed some form of cross border purchasing. While consolidation in the banking industry was already well underway, the government finally eliminated all interstate banking restrictions by implementing the Riegle-Neal Interstate Banking Act in 1994. It was during this period that many studies examining the effects M&A have on efficiency, profitability and stockholder wealth of the banks involved started appearing. The first such study came out in 1983 by Frieder & Apilado (1983); many studies followed, gaining increased attention after 1987. Methodologically most of these studies fall into two categories. One examines the operating performance of the banks involved and the other uses event study methodology. A summary of the studies related to this field conducted between 1980 and 1993 is offered by Rhoades (1994) who assesses both methodologies. A great deal has been added to the body of research on this subject since 1994 and in this chapter the relevant literature to date will be surveyed including operating performance (OP) studies, event studies and other literature concerning banking and M&A.

2.1 Operating Performance Studies

OP studies of bank mergers look at differences in operating performance pre and post merger by analyzing cost ratios and profit ratios. Cost ratios and profit ratios are indicators of bank efficiency and these ratios are representations of operating performance. Usually, OP studies compare the operating performance of merging banks to that of non-merging banks.

Rhoades (1998) examines the efficiency effects of bank mergers by summarizing nine case studies of large bank mergers. These mergers were likely to cause a gain in efficiency due to their size and their high degree of overlap in banking activity. This presents the merging banks with cost cutting opportunities. However, cost cutting is not synonymous with a gain in efficiency, since efficiency is measured by financial ratios such as expenses to assets, two accounting items that can move simultaneously. All nine studies at least examined a set of financial ratios relating to efficiency, profitability and balance sheet structure, hereby comparing a period pre merger to a period post merger. Findings ranged from no improvement in efficiency to substantial improvement in efficiency and most cases did show an improvement in profitability ratios such as return on equity (ROE). Most cost cutting objectives were reached quite quickly and consisted mainly of staff reductions and savings attributable to the integration of data processing systems. Econometric analysis, however, did not reveal the specific

characteristics of a successful merger as no significant relationship was found between office overlap and improvement in efficiency. Furthermore, differences in efficiency levels between acquirer and target did not prove to be a factor. The results of these studies were surprising in the sense that most former studies did not find significant gains in operating performance after a merger. The results however cannot be generalized due to the case specific nature of the sample selection where cases were chosen on the basis of high probability of efficiency gains.

Because the European banking market traditionally has been more fragmented than the US banking market, it is not possible simply to transpose findings on merger related bank efficiency from one continent to the other. Huizinga et al. (2001) examine a sample consisting of 52 bank mergers from 1994 to 1998. The authors considered a wide range of financial institutions such as commercial banks, mortgage and real estate banks and specialized governmental credit institutions and analyzed one year of pre merger and one year of post merger accounting information. This study did not compare a bank's efficiency ratios of the year pre merger to its efficiency ratios post merger, but rather compared the bank's efficiency ratios of both periods to a peer group of comparable banks. Results indicated that after a merger cost efficiency relative to the peer group did improve. Moreover, this improvement was highest when both acquirer and target were low performers in cost efficiency in the pre merger period, contradicting the hypothesis that the most successful mergers tend to be those with a relatively more efficient acquirer, letting the assets flow into the control of the better managed company. To determine whether the mergers proved to be socially beneficial, the authors also examined the effect of the merger on the deposit rates. After the mergers the deposit rates went from relatively low to relatively high compared to the peer group. This contradicts the notion of a market power effect, which would lead to banks lowering their deposit rates and thus raising their margins after having become larger entities post merger. The mergers seem to be socially beneficial, since there is no evidence for the existence of rent seeking behavior in the form of banks using their larger market power to lower deposit rates.

Although most studies treat mergers and acquisitions the same way, this is not self-evident. Focarelli et al. (2002) separate the two in their article on mergers and acquisitions in Italian commercial banking between 1985 and 1996. First the authors analyze the different characteristics of mergers and acquisitions and they examine the motives surrounding bank M&A. As for mergers, bidders tend to generate a higher proportion of their income out of services and have a relatively low interbank balance. Targets on the whole are less profitable and efficient, measured by return on assets (ROA), ROE and cost ratios such as labor costs or operating costs to gross income. A motive for mergers in this sample appeared to be that the bidding bank wants to provide even more services by gaining access to the customer base of the target. The motive for acquisitions is more in the light of credit management. Targets usually have a higher

proportion of non-performing loans and buyers would want to clean up the target's loan portfolio by applying their supposedly superior management skills. The effects of M&A are of course also examined. After a merger, on average, ROA decreases in the first four years. This is mostly attributable to large merger costs that are only partly compensated by increased revenue on services. However, a decrease in ROE is prevented by reducing equity through the returning of excess cash to shareholders. For acquisitions, a decrease is seen for both ROA and ROE in the short run, after which an increase is witnessed in the long run.

Despite the common methodology there are many variations among OP studies regarding sample size, geographical area, size of mergers examined, statistical tests applied and so on. Still, most OP studies are consistent in the findings that there are no significant improvements in either efficiency or profitability resulting from a merger. Criticism on OP studies includes the fact that OP studies base their findings on accounting data and not economic data. However, accounting data is used as a proxy for economic data, the true face of which can never be fully revealed. Also, using accounting data removes the necessity for the banks examined to be listed.

2.2 Event studies

Event studies in M&A are designed to reveal the effect investors think the merger or acquisition will have on the overall performance of the bank in the future. The abnormal returns of the stock of both acquirer and target are analyzed around the event date. This event date is defined as the announcement date of the merger as that, theoretically, is the moment when stock prices start to move in anticipation of the proposed merger. Stock prices are forward looking and contain all the available and relevant information at a certain moment in time. This makes the analysis of the abnormal stock returns suitable for determining whether a proposed merger is likely to create wealth or not. Standard event study methodology calculates abnormal or excess returns by subtracting 'normal' returns from the actual returns witnessed around a certain event date. These normal returns represent the expected returns on these stocks should the event not have occurred. These returns cannot be witnessed in reality as the event did in fact take place; they therefore have to be simulated. This simulation is done by using the market model whose parameters have to be estimated. The parameters are estimated by examining how the bank's stock has reacted in relation to changes of a relevant index in the past under normal circumstances, when there was no relevant event. Examining windows of abnormal returns (ARs) and cumulative abnormal returns (CARs) then provides information about what effect this specific event has had in isolation on the shareholder wealth of the parties involved.

The US, being the first country and major market to see M&A in banking occur on a large scale, is naturally also where the first event studies appeared examining the effect of M&A in banking on the shareholder wealth of both the acquiring and target banks involved. One of the first studies about the newfound opportunities in banking M&A that gained a lot of attention was by Hannan & Wolken (1989). This study analyzed a sample of 69 bidders and 43 targets between 1982 and 1987. The reason why there were more bidders than targets is that many targets were not listed. To stay in the sample none of the banks involved in a certain event was allowed to have partaken in an M&A deal in the six months prior to the event. This was to avoid the use of ‘polluted’ returns which would have made it impossible to estimate the unbiased market model parameters needed in calculating abnormal returns. To estimate the market model parameters the authors used daily stock data from the days [-90,-15] in relation to the event. Analyzing several windows of abnormal and cumulative abnormal returns revealed a wealth transfer from bidders to targets, which is consistent with other studies on M&A in other industries. In other words, on average a merger caused the stock price of the acquiring bank to show a significant decrease in abnormal returns, while the share price of the target showed a significant increase therein. Looking at the combined effect, the merger on average showed a slight negative effect indicating that the mergers actually destroy value overall. This was however not statistically significant. Cross-sectional analysis revealed that the only mergers that significantly created value were those in which the target banks were less capitalized than the median bank in the sample. A reason for this provided by the authors is the opportunity of an increased tax shield. Tests did not yield any significant results when comparing different target sizes or when differentiating between inter and intra state mergers.

A similar study, examining 153 events in the period of 1985 to 1991, also revealed a wealth transfer from bidder to target. A small increase in combined merger related revaluation on announcement date was witnessed, albeit not significant. To stay in the sample, Houston & Ryngaert (1994) required both bidder and target to have assets exceeding USD 100m in value and ‘mergers of equals’ were discarded. In these cases it is sometimes unclear which of the banks is the acquirer and which is the target. Announced mergers that were subsequently dropped, however, did remain in the sample, because at the moment of announcement investors do not know whether the merger will be carried out in the end or not. For verification, they analyzed the dropped deals separately as well. It could be argued that the mergers that were dropped were in fact mergers that were not likely to create value and that they would have a downward effect on the results of the full sample. Results, however, indicated no significant differences between dropped deals and the ones that were eventually carried out. The authors also created a variable to quantify the degree of geographical overlap of the operations of the bidder and the target. They argue that a high degree of overlap results in more cost cutting opportunities. For instance, the merged entity could close offices in areas where both banks are represented. The research revealed that M&A deals with

a high degree of overlap were treated better by the stock market. Examining the sample also revealed that bidders tend to be more profitable in terms of ROA than targets, indicating that through mergers the control of assets flows to the better managed companies. However, the mergers that created most value were those where both acquirer and target had a relatively high ROA.

Another study that tries to assess stockholder wealth in relation to mergers in the US market classifies mergers as either diversifying or focusing. Making this distinction geographically is straightforward and DeLong (2001) classifies the merging of two banks headquartered in the same state as geographically focusing and if this is not the case the merger is classified as geographically diversifying. Making this distinction looking at banking activity is more difficult. The author uses cluster analysis performed on the individual banks' stock returns to create clusters of banks. Banks whose stock returns move in a similar fashion end up in the same cluster. When zero percent of the variation between the banks' stock returns is explained, each bank is a cluster in itself. When 100 percent is explained one big cluster is the result. The author chose to stop when 50 percent of the variation was explained. Banks that merge within their cluster are seen as activity focusing, mergers between clusters as diversifying. Results on the subsamples created revealed that mergers that focus their activities significantly add value and mergers that diversify activities significantly destroy value. Differentiation along geographical lines did not reveal any significant results. Furthermore, the author subdivided the sample even more by creating a separate subsample for every possible combination. Results suggested that the only M&A deals in banking that created value were those that were not only activity focusing but also were headquartered in the same state.

Event studies concerning bank M&A in Europe started to gain more attention after research on the US market was already more established. One very straightforward article on the matter (Tourani Rad & Van Beek, 1999) examined a sample of 56 bidding and 17 target banks that had engaged in M&A between 1989 and 1996. The consolidation of the banking industry was also gaining ground in Europe due to the gradual integration of EU markets and the implementation of the Second Banking Directive in 1993, which introduced the idea of a single banking license valid throughout the EU. Quite consistent with prior US literature, results showed no significant movements in shareholder wealth for bidders and significant positive revaluations of the shares of the target banks. Additional research on bidding banks' prior profitability and size, on domestic vs. cross border and on pre and post Second Banking Directive did not lead to any significant results.

One of the few studies that actually found that mergers created wealth was conducted by Cybo-Ottone & Murgia (2000). They analyzed very large banking deals in the EU market plus the very important Swiss market. Instead of just looking at banking firms this study also included other financial institutions such

as insurance companies. The authors note that abnormal returns are already witnessed before announcement date indicating that investors already anticipate mergers before they are actually announced, possibly due to information leakage. Also, they looked at long term effects. Analysis of a one year long window after announcement revealed that only deals which involved an insurance company managed to keep their significantly positive revaluation.

A well-known mantra in finance is that there is no return without risk. In this light it makes a lot of sense to perform research on risk-related issues in banking M&A. Amihud et al. (2002) researched possible risk changes for acquirers engaged in cross border mergers in banking in addition to an event study on acquirer returns. Cross border acquisitions are seen as geographically diversifying and are therefore expected to lower the risk of insolvency. On the other hand, this insolvency risk could also increase where there are high monitoring costs. The authors take a look at two measures of risk. First they examine total relative risk. This is defined as the ratio of the variance of the acquirer's stock return to the variance of a relevant return index. They look at the difference in this ratio from days [-260,-10] relative to announcement date to days [+10,+260] after merger consummation. Three different indices are used as benchmarks. These indices are all banking indices: a world banking index, a home country banking index (the country of the acquirer) and a host country banking index (the country of the target). In addition to total relative risk, systematic (or beta-risk) was also examined. They investigated whether there was a change in the beta of the acquirer's stock return in relation to the three indices post merger compared to pre merger. The authors expected that cross border acquisitions would lower the systematic risk of the bank's stock return relative to the home index and increase the systematic risk of the bank's stock returns relative to the foreign and world index, because after the acquisition the acquirer will be relatively more dependent on foreign income. Surprisingly, the data did not support this hypothesis nor were any significant changes found in terms of total relative risk. In conclusion the authors note that regulators should not be too concerned about risk changes for domestic banks when foreign acquisitions are being made.

Other event studies related to banking M&A include a research on Canadian financial institutions. As the Canadian government in 1998 prohibited the biggest Canadian banks to merge with one another, these banks were forced to turn to other in-market financial institutions and to other countries, mainly the US. In addition to finding the usual better performance of targets than bidders, Bessler & Murtagh (2002) specifically focused on cross border vs. domestic deals along different sub sectors within the financial industry. Results showed that in the retail banking and wealth management sectors foreign acquisitions created value, while they did not in the insurance sector. The opposite held for domestic acquisitions. Chong et al. (2006) examined the unusual forced merger scheme in Malaysian banking. The Malaysian

government ordered the fragmented Malaysian banking industry to consolidate. This was supposed to create an internationally more competitive banking industry. The government decided which bank would acquire and which one was to be taken over. On top of that, the banks were not allowed to use their own valuation techniques. The event study revealed that these bank mergers significantly destroyed value. Inconsistent with previous literature this forced merger scheme produced winning acquirers and losing targets. After widespread protest from the banking industry the government changed the forced merger scheme into a more market-oriented one. The event study researching the revision turned results into its more common form of winning targets and losing bidders. In many developing countries and emerging markets there is a blurred line between politics and economics and it is not uncommon for banks to be linked to individual politicians, this also being the case in Malaysia. The authors suggest that the Malaysian bank merger scheme was not driven by economics but by cronyism. Shortly before the merger scheme was announced Deputy Prime Minister Anwar Ibrahim was fired. None of the appointed acquiring banks were politically linked to Mr. Ibrahim. All Ibrahim-linked banks were appointed as targets and cross-sectional analysis found that the negative CARs for Ibrahim-linked banks were attributable to just that fact rather than to any other idiosyncratic factors.

Most event studies have found that target firms will experience some gains. The results on bidders and on the total combined effect on bidders and targets, however, are too inconsistent to derive any robust conclusions. On the whole, event studies do not support the idea that M&A in banking create wealth. The significance of the outcomes of event studies appears to be largely dependent on the length of the windows of CARs examined. Short windows more often produce significant results. This indicates an overreaction of the market that is corrected in the period afterwards. Even though event study methodology is more standardized than the methodologies used in OP studies there are still a lot of variations. These variations are mainly in the sample size, the period of time over which market model parameters are estimated and the length of the windows of CARs analyzed. A shortcoming of event studies is that the abnormal returns that are analyzed largely reflect the outcomes of speculation of sophisticated investors trying to achieve short-term gains.

2.3 Other literature

Apart from scientific literature on M&A in the banking industry based on methodologies used in OP studies and event studies there is a wealth of research that in one way or another touches on M&A, industry effects, profitability determinants and other factors in banking.

Houston et al. (2001) question the motives of M&A in banking. Could it be that managers act in hubris and engage in empire building or are most M&A genuinely motivated by the possibility of major merger

gains? Interviews with several managers involved in takeovers suggest that the expected merger gains are mostly to be realized through the cutting of costs. Revenue enhancement by the cross-selling of products is less important. The market, however, does take the expectations of managers seriously as these expectations largely explain merger revaluations econometrically. These revaluations are less than the present value of the merger gains expected by the manager. This could be the result of managerial over-optimism or a preemptive reaction of the stock market. International mergers are a lot rarer than their domestic counterparts and Buch & DeLong (2004) try to assess which circumstances are most favorable for international M&A. Most important according to these authors are the information costs, which depend on three factors. These information costs are a function of the geographical distance between the two countries, whether they share a common language and whether the two countries have similar legal systems. The lower the information costs the more likely an international merger will take place. Additionally, acquirers tend to come from countries with high GDP and targets from countries in which government owns a relatively large percent of the banking industry. Many Asian countries' economies are planned to a greater extent than western countries' economies, which are more left to the free market. Pasiouras et al. (2006) wonder whether the characteristics of governmental regulation of a country has an effect on the likelihood of merger activity in the banking sector. They analyze 472 commercial banks in South and Southeast Asia and look for a connection between certain aspects of banking regulation in a specific country and how much M&A is going on. Among other findings, the authors come to the conclusion that the higher the standards on capital requirements, the less M&A is taking place in a given country, because there is less excess cash available for such acquisitions. The authors expected to find that the more restrictions on types of banking activity, the more M&A would take place. This was however not backed by the results. Also, contrary to expectations, it appeared that the existence of a deposit insurance scheme did not heighten the probability of merger activity. The authors expected that such a scheme would encourage banks to make risky acquisitions. However, it appeared that because deposits were insured, banks did not feel the need to lower risk by diversifying into different markets or banking activities.

Penas & Unal (2004) examine the effect of bank mergers by looking at the bond market instead of the equity market. Lower credit spreads post merger compared to pre merger indicate that bondholders perceive bank mergers as default risk reducing events. This can be the result of less volatile cash flows or achieving 'too-big-to-fail' status, which is essentially free insurance provided by government. The authors were not surprised that the mergers that had the most profound effect on lowering the cost of debt were mergers involving two mid-sized banks that as a result of the merger jumped into the 'too-big-to-fail' category.

Looking at 105 Italian banks in the period from 1993 to 1999 Acharya et al. (2006) conclude that it is not always good for a bank to seek maximum diversification. After analyzing the trade-off between risk and return by looking at return variables such as stock returns and ROA, and risk variables such as the amount of doubtful loans to total assets and volatility of stock, diseconomies of scale are discovered. According to this study the risk-return trade-off deteriorates especially when banks start to venture into sectors without prior experience or when there are many competitors in the new sector. One year later Baele et al. (2007) also examined diversification in banking. They compare functionally diversified banks to functionally specialized ones and as a criterion look at what portion of revenue is comprised of non-interest income. The greater this portion, the more functionally diversified a bank is supposed to be. By looking at an adjusted version of Tobin's Q, which is the ratio of the market value of a firm's assets to the replacement costs of those assets, the authors conclude that functionally diversified banks show superior performance in the long run and have relatively high franchise values. In addition, the authors find that diversified banks have relatively high systematic risk, but relatively low idiosyncratic risk. This implies conflicting interests for different stakeholders in the case of a functionally diversifying merger.

Another trade-off seen in banking markets in relation to M&A is between stability and competition. On the one hand M&A in banking adds to industry stability due to the risk-reducing effects of diversification. On the other hand a highly concentrated market with just a few large banks is detrimental to competition, because it can lead to non-competitive pricing. Again, using an adjusted version of Tobin's Q, DeJonghe & Vander Vennet (2008) analyze a sample of listed banks and indeed find that the abnormal returns are highest for banks that have a large market share in a concentrated market suggesting that only banks with large market shares are able to use their market power to bring about superior profit opportunities.

Looking at the overview of relevant literature it is fair to say that results, other than the notion of winning targets and losing bidders, vary a great deal. In particular, the ingredients of a successful merger are still very unclear. Potential cost efficiency improvements are evidently very important, while issues relating to prior profitability and whether a bank should be increasingly diversified or focused remain less clear. Most publications, however, do not support the idea that M&A in banking creates value and herein lies quite a paradox when comparing theory to practice. If M&A do not significantly create wealth, why are they so commonplace in reality today?

CHAPTER 3: Data

3.1 Sample Selection

A sample of initial announcement dates of M&A in the Finance and Insurance industry according to NAIC (North American Industry Classification codes starting with 52) was collected during a period from 1999 to 2007⁴. This was a period of relative stability and growth for the relevant region and in time sits comfortably between the Asian Financial Crisis that gripped much of Asia and started in July 1997 and the global financial crisis and market turmoil resulting from the Subprime Mortgage Crisis that became apparent in the USA in 2007 and spread globally during 2008. To assess accurately the effect M&A have on security prices it is important to look at a period of normal market circumstances. In a period of extreme market turmoil and volatility it is impossible to attribute the abnormal returns to the event, in this case the merger, as the share prices will obviously contain a lot of noise. Also, a great deal of mergers during a period of turmoil would essentially be rescue operations. The mergers examined in this research occurred in the Asia-Pacific region; more precisely, the acquirers in the sample are firms from Australia, China, Japan, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand, and the target banks are from the same nations plus Indonesia. The vast majority of scientific literature concerning M&A in banking relates to western banking markets and as previous literature has revealed results cannot simply be transferred across continents. To find out which parties actually were engaged in merger activity in the sample period and geographic region the Deal Analysis Module was used of the Thomson One Banker financial database.

To remain in the sample, the event study methodology requires both bidder and target firms to be listed on a public stock exchange due to the necessity of the use of daily stock data of both parties. To eliminate the effects of prior merger activity, all events were eliminated from the sample where either the bidder or the target had engaged in M&A within two years prior to the event. Furthermore, all deals with a transaction value of less than USD 100m were deleted from the sample of events. The Thomson One Banker database revealed 51 events in the Asia-Pacific region in the timeframe chosen that fitted the criteria above. Of these 51 events only five deals were cross-border and three announced deals were subsequently dropped. At the moment of merger announcement it is unknown whether a deal will be carried out in the end or not. As the majority of mergers are indeed carried out, the stock of the parties involved will move accordingly. The abnormal returns measured will therefore genuinely reflect effects related to the event and it is unnecessary to omit these dropped M&A deals from the sample.

⁴ For the full list of events see Appendix A

To estimate the market model parameters of the banks in the sample, daily stock returns of all the banks in the study are required together with an appropriate index. For every firm in the sample the market model parameters are estimated by regressing daily returns of the firm's stock on the daily returns of the DataStream (DS) Financials Industry Group of the given country. The actual data are obtained from the DataStream financial database and include the daily closing prices of the bidding and target banks' stock and the index to estimate market model parameters and compute abnormal returns. To examine the total merger-related revaluation for each merger the market values of the parties involved are required around the merger announcement dates. These market values (defined as the share price multiplied by the number of ordinary shares in issue) together with the historical exchange rates in the case of a cross-border merger were also obtained from DataStream.

3.2 Focusing and Diversifying Mergers

In researching how different types of mergers affect shareholder wealth it is interesting to create subsamples along the lines of focus versus diversification. The rationale behind this distinction stems from different motives often heard from managers when presenting the intention to engage in M&A. Focusing mergers tend to take place between players in similar geographic or product markets or a combination of both. This will, for instance, provide them with cost cutting opportunities resulting from possibilities such as closing offices due to office overlap post merger when both bidder and target have an office in the same financial center. Diversifying mergers are often the result of managers trying to smooth cash flows. These opportunities are the result of mergers between partners headquartered in different regions or operating in different product markets. An example of a diversifying merger is a bank that acquires an insurance company. These mergers are part of a default-risk reducing strategy as disappointing cash flow cycles in a particular division or geographic area can be compensated by others. A concern regarding this type of merger is whether investors appreciate companies diversifying their operations as they themselves can already diversify their portfolios.

3.2.1. Cluster Analysis

To determine whether a certain event is classified as focusing or diversifying, Ward's Minimum Variance Clustering Method is used. Applying this type of clustering method to a group of companies starts with each company being a cluster in itself. As clustering commences, the firms form clusters one by one until finally one all encompassing cluster is formed containing every object, i.e. the banks. For cluster analysis to be useful, the process is stopped right before it first combines two very dissimilar clusters. To determine which banks are most 'similar' and thus in which order the clustering process should take place, Ward's method tries every potential combination of objects or clusters in the sample and, with each

step in the clustering process, identifies the next combination that will result in the smallest incremental increase in the sum-of-squares index, also known as the squared Euclidean distance. The Euclidean distance is obtained by first calculating the mean of each potential new cluster. The attributes of each new potential cluster are subtracted from the mean and subsequently squared to eliminate the difference between negative and positive values to obtain absolute distances. Obviously, when the clustering process has not yet started and every object is a cluster in itself, the mean of each cluster is identical to the attributes of the cluster and the (squared) Euclidean distance is zero. With every step in the process the squared Euclidean distance increases. Because the similarity measure used in Ward's method is based on the squares of the attributes' differences, the differences increase non-linearly the further you move into the clustering process. This results in a well-defined clustering tree or dendrogram (Romesburg, 1984).

The attributes used as a criterion of how to group the various merger parties and thus differentiating between focusing and diversifying mergers are historical risk-adjusted returns on the banks' stock. The returns on stock put a price on all the different types of risk a firm is exposed to and therefore, with stock returns as the attributes, will cause the clustering process to group together those banks which are exposed to similar risks. Merging partners that after cluster analysis appear to be in the same group will be classified as focusing mergers, while M&A across clusters will be classified as diversifying. Note that hedging does not pose a problem in the classification of banks. For example, the stock of two mortgage lenders of which one hedges interest rate risk and the other does not will react differently to interest rate shocks. However, the hedging, using swaptions for instance, can be seen as an activity in itself. On closer inspection, even though both these institutions are mortgage lenders, these two players are less similar in activity than at first thought (DeLong, 2001).

In order to perform the cluster analysis the entire sample is divided into five separate groups of approximately ten events each, consisting necessarily of twenty parties or objects. A cluster analysis is performed on each group separately. The sample is divided according to the merger announcement dates, group 1 being the first ten events of the sample, group 2 the second ten events, etc. The whole sample is divided into five groups, because in order to perform cluster analysis it is important to use returns of the exact same year for all objects. If cluster analysis was performed on the entire sample at once, monthly returns of the year 1998 would be used for a bank that merged in 2007. In all likelihood, the risk structure of that particular bank would have changed in that period. For each bank, a vector with monthly risk-adjusted stock returns is formed covering January to December of the calendar year preceding the announcement date of the first merger of that particular group. The risk-adjusted monthly returns of bank i in month t are defined as:

$$r_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}} - r_{ft} \quad (3.1)$$

in which P_{it} is the closing price of the stock of bank i on the last day of month t and r_{ft} is a risk free rate with month t as holding period. As theoretically there are no securities that are absolutely risk free, a proxy is used. As a risk free rate, the 3-month Interbank Money Market Rates are used of Australia, Japan and Singapore, obtained from DataStream. These money market rates have a maturity close to the holding period of one month and the credit rating of Australia and Singapore is AAA while Japan has a credit rating of AA⁵. For all Australian banks in the sample the risk free rate of Australia is used. In addition to Japan, the Japanese risk free rate is used for banks from China, Hong Kong, South Korea and Taiwan. The Singaporean risk free rate is used for the remaining countries, namely Indonesia, Malaysia, the Phillipines, Singapore itself and Thailand. As the 3-month Interbank Money Market Rates are quoted per annum, a conversion must be made to the risk free rate to match the holding period of one month. To perform this adjustment the price difference approach (Vaihekoski, 2009) is used and the risk free rate with a holding period of a given number of days is defined as:

$$r_{ft} = \frac{r_f d}{dpy + r_f(dtm - d)} \quad (3.2)$$

where r_f is the observed money market 3-month rate expressed per annum, d stands for the number of days in the holding period, dpy stands for days per year and dtm for days to maturity. This approach takes the shortest available money market rates, in this case the 3-month rate, and assumes that the interest rate curve is flat for periods shorter than the available rate and that the risk free rate of return known at the beginning of the period stays the same for the whole period. To be able to calculate the risk free rates with a holding period of one month, it is necessary to know the day counting convention observed in the different markets (Table 3.1). Taking the various day counting conventions into account, dpy can take on the values of '365' or '366' in leap years in Australia, d takes one of the values of '28' through '31', depending on which month the risk free rate is calculated for and dtm can take on any value between '89' and '92', depending on which three month period the money market rate refers to.

After the clustering process has been completed, a dendrogram is formed that visually reflects the clustering process. To complete the cluster analysis one has to determine the number of clusters the sample will be divided into. By inspecting the dendrogram it is sometimes possible to spot natural clusters. This method relies heavily on interpretation and determining the number of clusters is always arbitrary. The so-called

⁵ 2008 data from Standard & Poor's rating agency

Table 3.1: Day counting conventions

Market	Day Counting Convention
Australia	actual/actual
Japan	actual/365
Singapore	actual/365

Table 3.1 reports the day counting conventions used in various markets. Information in front of the slash tells how days are counted for months, after the slash reports on how days are counted per year

Elbow method (Ketchen Jr. & Shook, 1996) is used to determine how many clusters the various banks will be grouped into. This method graphs the amount of clusters on the x -axis and the (dis)similarity coefficient on the y -axis. Using Ward's cluster method, this coefficient is always the squared Euclidean distance, which is a dissimilarity coefficient; the higher the coefficient, the less similar the clusters. Applying Ward's cluster method, a marked increase in squared Euclidean distance suggests that the two clusters combined at that moment are very dissimilar, and the number representing the amount of clusters is found at the 'elbow' of the graph. The graph, however, might also show more than one elbow. In this case the number of clusters is taken at the point of the first kink, where dissimilar clusters meet for the first time.

An example of the cluster analysis of Group 2 consisting of banks involved in M&A taken place between 19 May 2000 and 7 May 2002 is given below. Historical monthly risk-adjusted returns from 1999 of all firms are used in the cluster analysis. The elbow method reveals that the banks can be naturally grouped into five clusters. Cutting the dendrogram at the appropriate place reveals which banks belong in which cluster.

Analyzing the five clusters found and reported in Table 3.2 reveals for instance that Cluster 1 is home to many insurance companies. It is not surprising that both partners of event number 39 are in the same cluster as they are both Japanese insurance firms. This would be classified as a focusing merger in terms of both geography and activity. Event number 33 has partners in two different clusters. Orix (Cluster 2), a financial conglomerate, takes over an insurance company, Fuji Fire & Marine Insurance (Cluster 1). Financial conglomerates are large and diversified. This, according to the cluster analysis, diversifying merger fits into a diversifying strategy which is typical for financial conglomerates. Within Group 2, six of the ten merger events will be classified as focusing mergers, while the remaining four will be classified as diversifying mergers. Adding up all the groups that make up the full sample, 35 of all the events turned

Figure 3.1: Elbow method

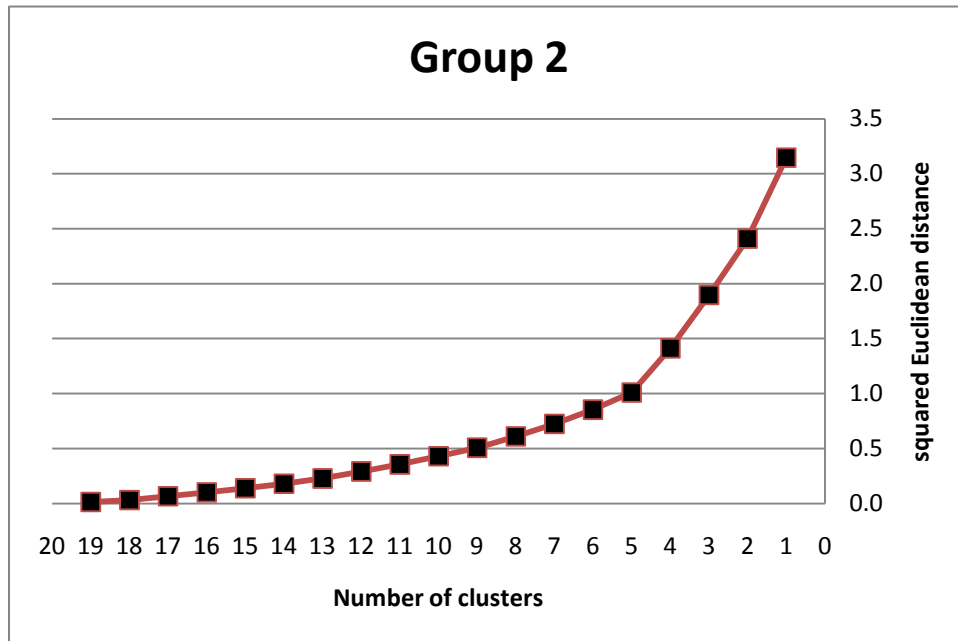


Figure 3.2: Dendrogram for Group 2

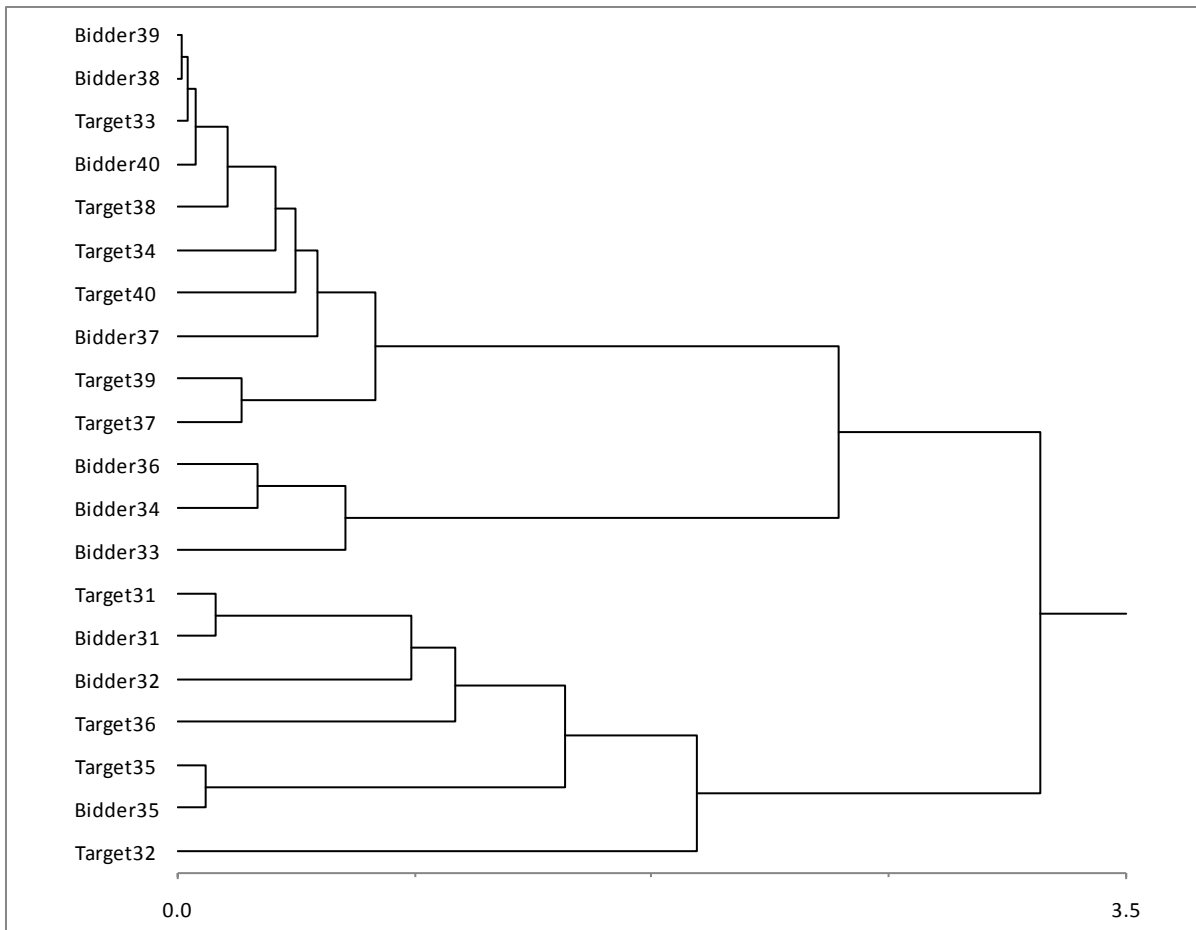


Table 3.2: Group 2 Clusters

Clusters	Merging Partners	Country	Code
Cluster 1	Yasuda Fire & Marine Insurance	Japan	Bidder37
	Setouchi Bank	Japan	Bidder38
	Tokio Marine & Fire Insurance	Japan	Bidder39
	Macquarie Infrastructure Group	Australia	Bidder40
	Fuji Fire & Marine Insurance	Japan	Target33
	Keppel Capital Holdings Ltd	Singapore	Target34
	Nissan Fire and Marine Ins Co	Japan	Target37
	Hiroshima Sogo Bank	Japan	Target38
	Nichido Fire and Marine Insur	Japan	Target39
	Infratil Australia Ltd	Australia	Target40
Cluster 2	ORIX Corp	Japan	Bidder33
	Oversea-Chinese Bkg Corp Ltd	Singapore	Bidder34
	DBS Group Holdings Ltd	Singapore	Bidder36
Cluster 3	CTB Financial Holding Co	Taiwan	Bidder31
	Shinhan Financial Group Ltd	South Korea	Bidder32
	ICBC	Taiwan	Target31
	Vickers Ballas Holdings Ltd	Singapore	Target36
Cluster 4	Sanyo Shinpan Finance Co Ltd	Japan	Bidder35
	Mycal Card Inc	Japan	Target35
Cluster 5	Good Morning Securities Co Ltd	South Korea	Target32

Table 3.2 displays the clusters the various merging partners of Group 2 fall into. Similar analyses are conducted for all 5 groups. M&A across clusters is classified as diversifying; M&A within clusters as focusing.

out to be focusing, being 70 percent of the total sample. The remaining 15 events are classified as diversifying. Of the 51 events, one event, event 13, did not have sufficient relevant data to be able to construct enough historical risk-adjusted monthly returns and has therefore been omitted from the cluster analysis.

3.3 Control Variables

In trying to explain abnormal returns, various control variables are obtained from the Thomson One Banker financial database which can be used in cross-sectional analysis. These control variables comprise firm and event specific characteristics, including deal size, acquirer and target size, acquirer and target ROA (defined as net income divided by total assets) and acquirer and target leverage (defined as total liabilities divided by total assets). These control variables are also interacted with each other. In this way it is possible to assess the importance of the relative size of the target to the bidder or the importance of the acquirer to be more profitable than the target, implying that by M&A the control of the assets flows to the better managed company. Also, dummy-variables are created to enable the examination of country effects.

Table 3.3: Descriptive Statistics of Control Variables

Variable	Mean	St. Dev.	Median	Min	Max
Deal Size (USD mil)	1222.4	1561.6	533.8	115.0	7345.9
Acquirer Size (Total Assets, USD mil)	92034.9	220607.3	30873.0	264.5	1318346.7
Target Size (Total Assets, USD mil)	11709.2	10392.5	10070.5	161.1	40470.0
Acquirer ROA Net Income / Total Assets	1.98%	7.29%	0.61%	-3.71%	47.72%
Target ROA Net Income / Total Assets	0.98%	2.39%	0.65%	-5.55%	11.95%
Acquirer Leverage Total Liabilities / Total Assets	83.62%	22.13%	90.77%	7.95%	97.83%
Target Leverage Total Liabilities / Total Assets	83.22%	17.00%	90.84%	11.77%	97.95%
Relative Size MVTtarget / MVAcquirer	50.56%	58.00%	32.51%	1.16%	281.96%
Relative Profitability AcquirerROA -/- TargetROA	0.09%	4.29%	0.02%	-11.24%	26.04%

Table 3.3 containing information on the various control variables used confirms the fact that bidders are much larger than targets in total asset size. They are also more profitable on average and the positive values for relative profitability show that through mergers the control of the assets flows to the better managed companies indeed. No marked differences are recorded regarding leverage numbers.

CHAPTER 4: Methodology

4.1 Event Study: Abnormal Returns

The main purpose of event studies in scientific financial literature is the analysis of a possible relationship between stock return and all kinds of firm-specific events that can occur. These events can take a variety of forms such as the publication of annual reports, stock splits or, as in this case, the announcement of M&A activity.

To determine the value effects investors assign to a certain event, event studies compare the return on the stock involved during a certain event period around an event to the return the same stock would have shown in that same period had the event not taken place. A value change as a consequence of the event in isolation would then be expressed as the difference between the return the stock shows in reality, with the event having taken place, and the return on the stock in the hypothetical situation of the event not having taken place. This difference is called abnormal return and is expressed as:

$$ar_{it} = r_{it} - r_{it}^* \quad (4.1)$$

where r stands for actual return, r^* stands for normal return and subscripts i and t stand for the relevant merging financial institution and the period, respectively. In this event study all returns are daily.

Determination of the actual returns is not complicated. Daily closing prices of the various shares in the sample are used. The exact figures for returns that would have occurred without the event having taken place are of course unknown and therefore have to be estimated. To estimate the normal returns, the market model of security returns is used, expressed as:

$$r_{it} = a_i + b_i r_{Mit} + \varepsilon_t \quad (4.2)$$

where a and b stand for the market model parameters which, respectively, stand for firm-specific factors and the part of return that is conditional on market-wide (systematic) factors; r_{Mit} stands for the return on a market index and ε is an error term. The market model parameters have to be estimated for each specific security in order to derive the so-called normal returns. This estimation is effected over a control period of actual returns for both the stock in question and a relevant market index. The control period used is a 250-day interval expressed as days [-300,-51] in relation to the event day, which in this case is the day the prospective merger or acquisition is announced. The DS Financials Industry Group for the country in which the company is headquartered is used for the relevant market index. The method of Ordinary Least

Squares (OLS) is used for the estimation. Subsequently, using the market model parameter estimators, the normal returns of bank i can be determined by:

$$r_{it}^* = \hat{a}_i + \hat{b}_i r_{Mit} \quad (4.3)$$

where \hat{a} and \hat{b} represents estimators of the market model parameters. A problem when estimating market model parameters using OLS with daily data can lie in non-synchronous trading (Scholes & Williams, 1977). This is particularly a problem with securities that are not traded very frequently. Reported stock returns can often deviate from true stock returns, because the closing price is determined by the last trade in the day of that particular stock. This trade could have taken place substantially earlier in the day than the time of determination of the closing of the market index at the end of the day. When this happens, even though the closing prices correspond to the same day, these stock returns are actually non-synchronous. Using daily data, which are potentially non-synchronous, to estimate market model parameters, can possibly lead to the econometric problem of errors-in-variables and could in this case produce downward biased estimators of b . Scholes & Williams introduce an alternative method to estimate the market model parameters which produce unbiased and consistent estimators. However, as Brown & Warner (1985) point out, downward biases in \hat{b} are compensated by upward biases in \hat{a} . When applying both methods for the estimation of market model parameters to 250 samples of 50 securities, Brown & Warner found that biases in \hat{b} due to non-synchronous trading did not affect tests for abnormal performance which, after all, is the focus of this study. Even though estimates of b using Scholes & Williams' method do show reduced biases in \hat{b} , there is no clear-cut benefit for the use of 'Scholes & Williams consistent' estimators over the use of OLS estimates of the market model parameters in detecting abnormal returns.

In order to make any solid statements regarding the information a certain type of event contains and how investors react to those events, it is not enough to look solely at individual events, mainly because of the presence of incidental factors. A statistical approach is needed based on a larger sample of events. All relevant observations, meaning abnormal returns of every firm in the (sub) sample, all of the same day t in relation to event date (event date defined as day [0], which is the day the prospective merger or acquisition is announced) are grouped into an average abnormal return:

$$AR_t = \frac{1}{N} \sum_{i=1}^N ar_{it} \quad (4.4)$$

with N representing the number of firms in a particular sample. In theory, every single observation of ar_{it} is related to a single event and any other influence encapsulated therein is strictly coincidental. When creating an average of abnormal returns, non-event effects will cancel each other out. The average abnormal return will only represent effects caused by the event in isolation. In the case of no trade performed in a particular security on a certain day, the closing price of that day is identical to the closing price of the day before, i.e. there is no reported return. In this case, this observation, together with the following observation, which would report the true return over, in this case, two days, is deleted from the time series. In addition, data points concerning public holidays (also reporting a return of 'zero') are omitted from the analysis. Furthermore, these data points are deleted in the risk analysis below.

The information contained in a specific event quite often does not reach the market in one instance. The Efficient Market Hypothesis (EMH) does not work perfectly; value effects do not always show instantly. Often there are already rumors among investors regarding a possible merger or the reaction of the market can show delay. That is why not only the event date itself is examined, but days or periods of days surrounding the merger announcements as well. When examining a period longer than just one day, it is necessary to construct cumulative abnormal returns. The cumulative abnormal return of firm i during time interval $[K,L]$ in relation to the announcement date is given by:

$$car_{iKL} = \sum_{t=K}^L ar_{it} \quad (4.5)$$

Similar to average abnormal returns, the cumulative average abnormal return is represented by:

$$CAR_{KL} = \frac{1}{N} \sum_{i=1}^N car_{iKL} \quad (4.6)$$

4.2 Weighted Combined Merger Revaluation

In this event study more than one party is involved in a single event, namely a bidder and a target. Just determining the (cumulative) abnormal returns for both bidders and targets relating to the merger announcement does not say anything about a merger in its entirety. Consider the hypothetical situation of a merger announcement with an abnormal return to the bidder of -3 percent and to the target of +3 percent. This, considering that most bidders are much larger in terms of market value than their targets, probably represents a value-destroying merger in the eyes of investors, even though at first sight it looks like losses to bidders are offset by targets. Taking the relative sizes of bidders and targets into account

makes it possible to determine whether a certain M&A plan as a whole is considered a favorable project by investors and whether investors expect the deal to create value or not. The weighted combined merger revaluation is given by:

$$WCMR = \frac{MV_{[K-1]j}^B car_{[K,L]j}^B + MV_{[K-1]j}^T car_{[K,L]j}^T}{MV_{[K-1]j}^B + MV_{[K-1]j}^T} \quad (4.7)$$

with $MV_{[K-1]j}$ representing the market value of stock based on the closing price per share on day [K-1] in relation to announcement day for the bidder (superscript *B*) or target (superscript *T*) of event *j*. Note that for determining the weighted combined merger revaluation in the case of cross-border M&A, the market value of the targets is converted to the local currency of the country of the acquirer using the exchange rate of that particular day.

4.3 Risk

Reducing the risk of insolvency is a motive commonly heard when firms engage in merger activity. Whether this is to be obtained through cash flow smoothing as a result of diversifying merger strategies or through the possibilities of making sizeable cost cuttings in firm overheads, risk reduction is frequently identified as a prominent reason to merge. This is not surprising as investors mainly worry about two components of their investments: return and risk. In addition to return effects in relation to M&A in the Asia-Pacific region, it is also interesting to examine risk effects to acquirers resulting from M&A. Using two different categories of risk, it is examined whether acquiring banks actually prove to be ‘safer’ post merger compared to pre merger and how this risk is built up.

4.3.1 Total Risk

A common measurement of risk of an investment is defined by the variance of its returns. This risk measure is related, for reasons of standardization, to the variance of the relevant market index (Amihud et al, 2002) and serves as a benchmark. This total relative risk is expressed as

$$TRR_{i,MI} = \frac{v(r_i)}{v(r_{MI})} \quad (4.8)$$

with v meaning variance. A period [-300,-51] relative to merger announcement is compared to a period [+51,+300] relative to merger *consummation* and the change in TRR is expressed as

$$\Delta TRR_{i,MI} = TRR_{i,MI}(after) - TRR_{i,MI}(before) \quad (4.9)$$

Since not every deal in the sample was completed, risk measurements are only calculated for acquirers that accomplished their M&A.

4.3.2 Systematic Risk

Most investors are only interested in the systematic component of risk. This is because the other risk component, idiosyncratic risk, can be wholly diversified away and does not offer any compensation. To analyze whether acquirers show any systematic risk changes post merger compared to pre merger, beta-coefficients are estimated for these banks. These beta-coefficients represent the sensitivity of the bank's stock to market-wide developments (systematic risk). Again, the period [-300,-51] in relation to merger announcement is compared to the period [+51,+300] in relation to the day the M&A operation was executed. As already mentioned in section 4.1 on the estimation of market model parameters, the use of daily data points can potentially lead to errors-in-variables due to non-synchronous trading when the method of regressing daily stock returns on daily index returns with OLS is applied. This part of the risk analysis examines straight beta-coefficients, leaving no possibility for other coefficients to compensate for downward biases in beta. To circumvent the problem posed by non-synchronous trading, the beta-coefficients are estimated using Scholes and Williams' method, which yields unbiased and consistent estimators:

$$\hat{\beta}_i = \frac{b_i^- + b_i + b_i^+}{1 + 2\rho_{MI}} \quad (4.10)$$

where b_i^- , b_i and b_i^+ are regression coefficients and ρ_{MI} is an autocorrelation coefficient.⁶ Similar to the computation of the change in TRR, the change in systematic risk post merger compared to pre merger is given by:

$$\Delta\beta_i = \beta_i(after) - \beta_i(before) \quad (4.11)$$

⁶ For the computations of b_i^- , b_i , b_i^+ and ρ_{MI} see Appendix B

4.4 Tests

In order to assess whether any of our findings possess any explanatory power, t-statistics are computed that reveal whether a specific result can be considered as significantly different from zero. t-statistics are computed for the (C)ARs to bidders and targets, weighted combined merger revaluations and the differences in the two risk measurements, and are given by:

$$t = \frac{\bar{x}}{s/\sqrt{N}} \quad (4.12)$$

where \bar{x} represents the result found, s the sample standard deviation and N the number of observations in the sample analyzed. This statistic has a Student-t distribution under the null-hypothesis that the mean is equal to zero. The number of degrees of freedom is given by:

$$DF = N - 1 \quad (4.13)$$

As this study divides the sample into focusing and diversifying mergers, a t-statistic is also produced to examine whether the means of different sub samples are equal to each other or not. This statistic is given by:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{v_1/N_1 + v_2/N_2}} \quad (4.14)$$

with v standing for sample variance and subscripts 1 and 2 for the two samples analyzed. This statistic has a Student-t distribution under the null hypothesis that the means of both samples are equal. The number of degrees of freedom is given by:

$$DF = \frac{(v_1/N_1 + v_2/N_2)^2}{(v_1/N_1)^2/(N_1 - 1) + (v_2/N_2)^2/(N_2 - 1)} \quad (4.15)$$

In addition to the various t-statistics produced, z-statistics are calculated that test whether the proportion of positive results within a particular sample is significantly different from 50 percent. This test statistic is standard normally distributed and is given by:

$$z = \frac{p - p_0}{\sqrt{\frac{p_0(1 - p_0)}{N}}} \quad (4.16)$$

where p represents the proportion of positive observations within a sample and p_0 the proportion of positive results under the null hypothesis. Throughout this paper the value ‘0.5’ is used for p_0 .

4.5 Non-Parametric Test

The number of M&A deals in the sample classified as diversifying, is 15. This raises questions on the validity and robustness of the results obtained for the sub group of diversifying mergers in the event study and risk analysis. The Central Limit Theorem does not hold and as a rule of thumb requires an N of 30 for the underlying sample to approach normality and for the Student-t distribution to represent the sample accurately. In this section, a non-parametric test is introduced. Non-parametric tests do not require the same amount of assumptions about the underlying populations and sample distributions, and can be used in instances of, for example, low sample sizes. However, non-parametric tests do exhibit lesser explanatory power than their parametric counterparts.

As a robustness test on the findings on the sub sample of diversifying mergers the Wilcoxon Signed-Rank test (Wilcoxon, 1945) is used. This test is designed to compare two populations for which there are paired observations, but is also suitable for testing whether the median of a single population is equal to any given value. The null hypothesis of the Wilcoxon test used in this paper is that the median observation in a sample of results concerning diversifying mergers is equal to zero. For each data point in the sample, the absolute distance from zero is established after which each absolute distance is ranked (the observation showing the smallest absolute distance is ranked ‘1’, etc.). In the next step, sums are formed of the ranks for both the originally negative and originally positive differences. Subsequently, the Wilcoxon T-statistic is defined as:

$$T = \min \left(\sum (+), \sum (-) \right) \quad (4.17)$$

where $\sum(+)$ is the sum of the ranks of the positive differences and $\sum(-)$ is the sum of the ranks of the negative differences. The Wilcoxon T-test is a statistical test carried out on the left tail and the null-hypothesis is rejected if T is less than a critical point that depends on N .

4.5 Cross-sectional analysis

The results of event studies are representations of average outcomes. Naturally, there is considerable variation in the returns to bidders, targets and combined revaluations. To explain this cross-sectional variation among the returns, several firm and deal specific factors will be examined that could have an influence on the outcomes of a specific event. In addition, dummy-variables will be introduced to control

for merger type (focusing or diversifying) and for mergers where the acquirer is headquartered in one of the three developed nations that are most represented in the sample, namely Australia, Japan and Taiwan. The regression that examines the cross-sectional effects of the various control variables and dummies is:

$$\begin{aligned}
 y & & (4.18) \\
 &= \alpha + \beta_1 \\
 &\times \text{dummy to indicate diversifying merger} \\
 &+ \beta_2 \times \text{deal size} + \beta_3 \times \text{total assets of bidder} \\
 &+ \beta_4 \times \text{total assets of target} + \beta_5 \\
 &\times \text{pre merger ROA of bidder} + \beta_6 \\
 &\times \text{pre merger ROA of target} + \beta_7 \\
 &\times \text{bidder leverage} + \beta_8 \times \text{target leverage} + \beta_9 \\
 &\times \text{dummy to indicate Japanese bidder} + \beta_{10} \\
 &\times \text{dummy to indicate Taiwanese bidder} + \beta_{11} \\
 &\times \text{dummy to indicate Australian bidder}
 \end{aligned}$$

where the dependent variable is either weighted combined merger revaluation, bidder abnormal return or target abnormal return. The intercept represents the portion of return not explained by the control variables. The estimation method is OLS and, where necessary, controlled for heteroskedasticity using White's method (White, 1980). In addition, regressions are run where the variables concerning profitability are replaced by a variable representing the difference in ROA between the bidder and the target (ROADIFF) and the variables concerning size are replaced by a variable reflecting the relative size of target to bidder (MKTRATIO) (Houston & Ryngaert, 1994). These control variables cannot serve as independent variables in the same regression, because of the existence of perfect multi-collinearity. After the analysis the insignificant variables are removed and the regressions are run once again.

CHAPTER 5: Empirical Results

5.1 Abnormal Returns

Table 5.1 reports the results of the event study performed for various periods on and surrounding M&A announcement dates regarding abnormal returns to bidders and targets in various (sub) samples. Looking at all events in the sample, Panel A reports a significantly positive abnormal return of 3 percent for the 6-day period prior to and including the date of announcement. After announcement, abnormal returns to bidders show a mild correction by the market, although this coefficient is not significant. In the short and longer event periods surrounding merger announcement, bidders do not experience any significant abnormal return effects. Considering that the median abnormal return for the [-5,0] event window lies considerable below the mean, it could well be the case that the significant result of the mean is mainly driven by outliers. In accordance with most literature to date, the abnormal return effects for targets are much more pronounced. For a significantly high proportion of the targets in the sample, abnormal returns are significantly positive for all but one reported event window. Again it is the period post merger that does not contribute to the positivity of abnormal returns, although the longer period surrounding announcement date is still significantly positive. Once again, median values lie below the means. Positive abnormal returns for target shareholders do not come as a surprise as these shareholders would normally not approve being acquired without financial gain, while it is not uncommon for bidders to overpay for what they buy, due to for instance winner's curse. The fact that the bulk of abnormal return is realized in the period pre merger is an indication of investors already anticipating the M&A plans before the announcement is officially made, possibly as a result of reacting to rumors of an upcoming merger. The fact that targets perform better than bidders is well-documented in previous literature. What is less usual is that bidders in fact experience abnormal capital gains as well, something that is not found in studies on the US market, as shown in the article by Houston & Ryngaert (1994) and on the European market (Tourani Rad & Van Beek, 1999), where the bidding banks experience significant abnormal losses.

Splitting the full sample into groups of focusing and diversifying mergers reveals that for bidders engaging in M&A of a diversifying nature the positive abnormal return for the [-5,0] window disappears nearly completely. Targets involved in a diversifying merger lose abnormal positive performance in two windows, on announcement date and also in the days immediately surrounding that date. However, the highest positive abnormal return in the study of over 10 percent is reported for the longer period running up to announcement day. It appears that rumors concerning targets in a diversifying merger are initially welcomed very favorably by investors, after which a correction (albeit not significant) takes place in the market, leaving the abnormal returns to targets in focusing and diversifying mergers to take similar

Table 5.1: (Cumulative) Abnormal Return

Period	Bidders			Targets		
	Mean (%)	Median (%)	Positive Prop. (%)	Mean (%)	Median (%)	Positive Prop. (%)
Panel A: Full Sample						
CAR [-10,0]	2.68 (1.596)	-0.62	43.1 (-0.980)	7.63* (5.077)	1.76	64.0* (1.980)
CAR [-5,0]	3.00* (2.301)	0.46	52.94 (0.420)	7.17* (5.775)	2.54	75* (3.464)
AR [0]	0.96 (1.905)	0.48	60.0 (1.265)	4.10* (3.25)	1.17	70.0* (2.530)
CAR [+1,+10]	-1.62 (-1.769)	-0.69	46.0 (-0.566)	-0.24 (-0.186)	-0.58	44.9 (-0.714)
CAR [-1,+1]	-0.17 (-0.263)	-0.15	44.9 (-0.714)	4.50* (3.502)	3.78	70.8* (2.887)
CAR [-10,+10]	1.09 (0.608)	0.30	52.9 (0.420)	7.40* -4.476	4.61	70.6* -2.941
Panel B: Focusing M&A deals						
CAR [-10,0]	3.61 (1.609)	-0.46	42.9 (-0.845)	6.82* (3.603)	1.60	60.0 (1.183)
CAR [-5,0]	4.03* (2.259)	0.97	54.3 (0.507)	7.0* (4.668)	2.72	76.5* (3.087)
AR [0]	0.85 (1.259)	0.52	57.7 (0.784)	3.46* (2.652)	1.17	70.0* (2.191)
CAR [+1,+10]	-1.26 (-1.035)	0.03	51.4 (0.169)	1.04 (0.670)	-0.27	47.1 (-0.343)
CAR [-1,+1]	-0.73 (-0.884)	-0.35	38.2 (-1.372)	4.53* (2.921)	4.07	76.5* (3.087)
CAR [-10,+10]	2.34 (0.974)	1.60	60.0 (1.183)	7.84* (3.688)	4.50	68.6* (2.197)
Panel C: Diversifying M&A deals						
CAR [-10,0]	1.03 (0.448)	-0.86 (59)	46.7 (-0.258)	10.01* (3.984)	5.41 (37)	78.6* (2.138)
CAR [-5,0]	0.88 (0.604)	0.42 (45)	53.3 (0.258)	7.88* (3.198)	1.07 (47)	76.9 (1.941)
AR [0]	1.19 (1.537)	0.36 (37)	61.5 (0.832)	6.25 (1.712)	0.66 (29)	66.7 1
CAR [+1,+10]	-2.54 (-2.101)	-1.90 (58)	35.7 (-1.069)	-3.08 (-1.245)	-1.14 (52)	42.9 (-0.535)
CAR [-1,+1]	0.93 (1.065)	0.54 (42)	57.1 (0.535)	4.43 (1.727)	2.53 (50)	53.8 (0.277)
CAR [-10,+10]	-1.34 (-0.570)	-3.11 (56)	40.0 (-0.775)	7.14* (2.723)	5.80* (15)	80.0* (2.324)

Table 5.1 reports the(C)ARs to bidders and targets surrounding M&A announcement dates for the full sample (Panel A), Focusing Mergers (Panel B) and Diversifying Mergers (Panel C) for various event periods. Figures in parentheses below means represent t-statistics testing the null-hypothesis of the means being equal to zero. Figures in parentheses below the positive proportion of results represent z-statistics testing the null-hypothesis of proportions being equal to 50 percent. For results concerning diversifying M&A, figures in parentheses below medians represent Wilcoxon T-statistics testing the hypothesis whether the medians are equal to zero. Results in bold and marked with an asterisk indicate rejection of the null-hypothesis at a significance level of 5 percent.

measures in the longer run. Also, diversifying mergers show a median significantly higher than zero. This is an indication that the positive returns to diversifying targets are robust and not the consequence of outliers heavily influencing results.

Comparing the means of the abnormal returns of the various (sub) samples in various periods reveals that the means differ significantly from one another when comparing bidders to targets, but do not differ from

one another when comparing focusing bidders to diversifying bidders and targets involved in focusing mergers to targets involved in diversifying mergers. As the results in Panel A of Table 5.2 indicate, the abnormal returns to bidders and targets are closer together when looking at the two sub samples as opposed to the mean differences full sample. In other words, t-statistics on mean differences are much more often significant when comparing bidders to targets at full sample level than when only looking at sub sample level. Looking at the t-statistics reported in Panel B there are no significant results to be mentioned. Apparently the means of abnormal returns to bidders are not significantly different across sub samples. This is also the case for targets.

Table 5.2: Means of (Cumulative) Abnormal Returns Compared

Panel A: Bidders vs. Targets				
	Period	Targets		
		Full Sample	Focus	Diversification
Bidders	CAR [-10,0]	2.193*	1.096	2.640*
	CAR [-5,0]	0.679	0.049	1.508
	AR [0]	2.316*	1.773	1.357
	CAR [+1,+10]	0.862	1.165	-0.195
	CAR [-1,+1]	3.256*	2.994*	1.291
	CAR [-10,+10]	2.580*	1.712	2.407*
Panel B: Focus vs. Diversification				
	Period	Diversification		
		Bidders	Targets	
Focus	CAR [-10,0]		0.804	-1.014
	CAR [-5,0]		1.371	-0.020
	AR [0]		-0.326	-0.720
	CAR [+1,+10]		0.742	0.206
	CAR [-1,+1]		-1.381	0.035
	CAR [-10,+10]		1.095	0.206

Table 5.2 reports t-statistics testing the null-hypothesis whether means of various (sub) sample are equal to one another. Panel A compares the mean (cumulative) abnormal returns of bidders to those of targets and does so for the entire sample and for the focusing and diversifying sub samples. Panel B compares the mean (cumulative) abnormal returns of focusing bidders to those of diversifying bidders and compares the mean (cumulative) abnormal returns of targets involved in focusing M&A to those involved in diversifying M&A. t-statistics in bold and marked with an asterisk indicate the rejection of the null-hypothesis at a significance level of 5 percent.

5.2 Weighted Combined Merger Revaluation

In order to assess how M&A plans as a whole are processed by the market in the Asia-Pacific region the weighted combined merger revaluation is calculated for two periods that proved significant for bidders

and targets separately, namely for the [-5,0] period and for announcement day, period [0]. This is, however, no guarantee for significantly positive merger revaluations. Reported (cumulative) abnormal returns to bidders and targets are averages. Since bidders normally are substantially larger than targets in

Table 5.3: Weighted Combined Merger Revaluation

Period	Mean (%)	Median (%)	Positive Prop. (%)
Panel A: Full Sample			
[-5,0]	3.67* (3.281)	1.27	70.0* (2.828)
[0]	0.88 (1.681)	0.58	58.6 (0.928)
Panel B: Focusing M&A deals			
[-5,0]	4.46* (3.018)	1.39	71.4* (2.535)
[0]	0.89 (1.359)	0.58	57.1 (0.655)
Panel C: Diversifying M&A deals			
[-5,0]	1.95 (1.323)	1.48 (34)	64.3 (1.069)
[0]	0.91 (0.866)	0.18 (10)	57.1 (0.378)
Panel D: Means Compared			
		Focus vs. Diversification	
[-5,0]		1.203	
[0]		-0.016	

Table 5.3 reports the weighted combined merger revaluation of the M&A taken place in the various samples for two periods. Figures in parentheses below means represent t-statistics testing the null-hypothesis of the means being equal to zero. Figures in parentheses below the positive proportion of results represent z-statistics testing the null-hypothesis of proportions being equal to 50 percent. For results concerning diversifying M&A, figures in parentheses below medians represent Wilcoxon T-statistics testing the hypothesis whether the medians are equal to zero. Figures in Panel D are t-statistics testing whether the means of the two sub samples are equal to one another. Results in bold and marked with an asterisk indicate rejection of the null-hypothesis at a significance level of 5 percent.

terms of market value, they mainly drive these results. For period [-5,0] both bidders and targets show significant positive abnormal returns. This, indeed, leads to a significantly positive average weighted combined merger revaluation over this period of 3.67 percent when looking at the full sample. Again, the median value is below the mean, but the revaluation is positive for a significant 70 percent of the full sample. The abnormal return effect on the announcement day itself does not prove to be significant. The larger targets neutralize the significant positive abnormal returns to the targets. Comparing focusing

M&A deals to diversifying ones, although the t-statistics on the comparing of means are insignificant, reveals that the market values focusing M&A deals higher than diversifying M&A deals in the Asia-Pacific region. This could be explained by the notion that investors often do not prefer companies that have diversification as an M&A strategy. Investors are capable of diversifying their portfolios themselves and do not need the companies that they invest in to do that for them. Apparently, in this sample of events, investors prefer a focusing M&A strategy for financial institutions. These strategies intend to create cost cutting opportunities which in this sample are valued higher than the advantages for a company of being diversified. The results on weighted combined merger revaluation found in existing literature are mixed. Conclusions range from significantly negative revaluations to significantly positive ones, with no significant results in between. The finding that focusing M&A deals are valued higher than diversifying M&A deals is partly consistent with the findings of DeLong (2001). Out of four sub samples she only finds significant positive results for M&A that focus both activity and geography.

5.3 Risk

Various studies in literature to date have examined the risk effects of M&A in the financial industry. Lubatkin & O'Neill (1987) find that on average mergers in the financial sector are associated with higher levels of total risk and higher levels of idiosyncratic risk post merger. They too distinguish different types of mergers and only mergers that they classify as 'related' mergers manage to lower the systematic risk profile of the acquirers involved. These related mergers could be likened to the focusing merger group in this paper. Various lines of thought exist on risk reduction in the case of diversifying mergers of banks trying to expand their activities into other product markets. Expectations of risk reduction due to asset diversification are common, while there is also the view that when commercial banks get into activities innately riskier than commercial banking, risk simply increases. Boyd, Graham and Hewitt (1993) analyze different kinds of mergers within the diversifying M&A group in their paper questioning the frequently heard risk-reduction motive put forward by managers seeking M&A. They find that banks acquiring insurance firms on average see a reduction in their risk of failure, while banks acquiring securities firms, trying to move more into the field of investment banking, actually see their risk of failure increase. What definitely reduces the risk of failure is for a bank to become 'too big to fail'. This basically means the government will not allow the bank to go bankrupt, fearing such an occurrence would have too profound an adverse effect on the economy as a whole; the bank has become too important. This so-called unofficial too-big-to-fail status can be obtained by banks by merging into this category.

The results regarding the risk analysis comparing the TRR and the systematic risk of a period pre merger to a period after merger consummation are presented in Table 5.4. No significant results are to be found. On average the mean TRR shows a modest increase. Contrary to the intention of their strategy, it appears

that the sub group showing the greatest increase in risk is the sub sample of diversifying acquirers. Negative medians for the full sample and for the focusing sub group imply that even though on average TRR rises post merger, there is a reduction in TRR for the majority of focusing acquirers. Market regulators are concerned with the solvency of the entire banking sector and every single financial institution in that sector. Therefore,

Table 5.4: Risk analysis

(Sub)Sample	Mean	Median	Positive Prop. (%)
Panel A: Total Relative Risk			
ΔTRR			
Full	0.0673 (0.199)	-0.1214	44.4 (-0.745)
Focus	0.0802 (0.181)	-0.2016	43.3 (-0.730)
Diversification	0.3730 (0.890)	0.0913 (41)	50.0 (0.000)
Panel B: Systematic Risk			
$\Delta\beta$			
Full	0.0541 (1.051)	0.0200	0.6000 (1.342)
Focus	0.0511 (0.691)	0.0138	53.3 (0.365)
Diversification	0.0536 (1.044)	0.0894 (30)	71.4 (1.572)
Panel C: Means Compared			
	Focus vs. Diversification		
ΔTRR	-0.480		
$\Delta\beta$	-0.028		

Table 5.4 reports results of the risk analysis comparing stock of acquirers from a period [-300,-51] related to merger announcement to a period [+51,+300] related to merger consummation. Figures in parentheses below means represent t-statistics testing the null-hypothesis of the means being equal to zero. Figures in parentheses below the positive proportion of results represent z-statistics testing the null-hypothesis of proportions being equal to 50 percent. For results concerning diversifying M&A, figures in parentheses below medians represent Wilcoxon T-statistics testing the hypothesis whether the medians are equal to zero. In addition, Panel C reports t-statistics concerning the null-hypothesis of the mean of the focusing and diversifying sub groups being equal. Rejection of the null-hypothesis is performed at 5 percent level.

it is the total risk that is relevant to market regulation as the bankruptcy of a bank can have disastrous consequences for the entire sector. Investors are primarily concerned with systematic risk, since that is the

only risk component that counts when composing a diversified stock portfolio. Idiosyncratic risk can be wholly diversified away and compensation is only offered by the market for systematic risk. Regarding systematic risk, all (sub) groups show an insignificant rise in sensitivity to market-wide developments. The reason why the mean of the difference in systematic risk of the full sample is not found between the means of difference in systematic risk of the focusing and diversifying sub groups, is Event 13. Due to lack of useable data, this event was omitted from the cluster analysis above and was thus not included in any sub sample. It so happened that with respect to change in systematic risk, Event 13 proved to be an outlier with enough influence to cause this anomaly.

5.4 Cross-sectional Analysis

In order to explain cross-sectional variation among abnormal returns surrounding merger announcements, various control regressions are run. Control regressions are designed to assess which characteristics lead to a successful merger. By using different dependent variables, the effects the merger announcements have on the weighted combined merger revaluation, the abnormal returns to bidders and the abnormal returns to the target are revealed. The results of the regressions are reported in Table 5.5 which presents the White heteroskedasticity-consistent coefficients belonging to the various control variables.

Other than a country bias that suggests that targets acquired by an Australian bidder experience relatively high abnormal returns, there are no significant results to be reported on the regressions analyzing the abnormal returns on target's stock. Considering the fact that the target is the more passive player in the event, this is not surprising. The more active participant, the bidder, shows many more significant coefficients as does the weighted combined merger revaluation. Since the outcomes for the weighted combined merger revaluation are largely driven by the abnormal returns to bidders, it is not strange to find that similar coefficients are significant for both merger revaluation and bidder abnormal returns.

It is interesting to note that while targets taken over by an Australian bidder get a relatively good price, the Australian bidder dummy has a significantly negative coefficient when explaining bidder abnormal return. These opposing signs of the coefficients for the Australian bidder dummies for bidder and target abnormal return are consistent with each other. Australian bidders seem structurally to overpay for their acquisitions, falling victim to the winner's curse.

The control variables concerning the size of the deal, the size of the bidder and the size of the target prove to have absolutely no explanatory power whatsoever in any regression. As the bidders primarily drive the results

Table 5.5: Cross-sectional Analysis

Independent Variable	Dependent Variable																
	Panel A: WCMR [0]					Panel B: Bidder AR [0]					Panel C: Target AR [0]						
Constant	-0.0130 (-0.308)	-0.0256 (-0.599)	-0.0021 (-0.100)	0.0368 (1.174)	0.0446 (1.959)	0.0271 (0.730)	0.0159 (0.907)	0.0036 (0.095)	0.0159 (0.907)	0.0791* (3.184)	0.0879* (2.705)	-0.0888 (-0.839)	0.0241* (2.463)	0.0078 (0.073)	-0.0253 (-0.336)	0.0241* (2.463)	
Diversifying Merger (dummy)	-0.0072 (-0.671)	-0.0066 (-0.604)		-0.0061 (-0.549)		-0.0020 (-0.215)		0.0001 (0.009)		-0.0016 (-0.164)		-0.0048 (-0.167)		-0.0085 (-0.280)		0.0003 (0.009)	
Deal Size	0.0000 (-0.503)	0.0000 (-0.699)		0.0000 (0.587)		0.0000 (-1.077)		0.0000 (-0.981)		0.0000 (-0.026)		0.0000 (-1.175)		0.0000 (-1.147)		0.0000 (-0.821)	
Bidder Total Assets	0.0000 (0.071)			0.0000 (0.439)		0.0000 (-0.380)				0.0000 (0.101)		0.0000 (0.068)				0.0000 (0.329)	
Target Total Assets	0.0000 (0.936)			0.0000 (1.109)		0.0000 (1.582)				0.0000 (1.633)		0.0000 (-1.885)				0.0000 (-1.801)	
MKTRATIO		-0.0009 (-0.130)						0.0017 (0.250)						-0.0054 (-0.280)			
Bidder ROA	0.0000 (0.071)	0.1653 (0.776)				0.0785 (0.373)		0.1569 (0.719)				0.0404 (0.074)		-0.2736 (-0.482)			
Target ROA	0.6037 (2.073)	0.6452* (2.376)	0.4496* (2.919)			0.6640* (2.633)	0.5867* (4.239)	0.6687* (2.731)	0.5867* (4.239)			0.9005 (1.220)		0.7529 (1.055)			
ROADIFF				-0.1681 (-1.277)						-0.2493* (-2.201)	-0.3296* (-3.987)					-0.3347 (-1.017)	
Bidder Leverage	-0.0663 (-1.984)	-0.0572 (-1.879)		-0.0991* (-3.501)	-0.0458 (-1.765)	-0.0910* (-3.204)	-0.0887* (-4.668)	-0.0831* (-2.909)	-0.0886* (-4.668)	-0.1200* (-4.897)	-0.0926* (-2.710)	0.0861 (0.997)		0.0447 (0.527)		0.0423 (0.611)	
Target Leverage	0.0787 (1.814)	0.0917* (2.454)	0.0088 (0.351)	0.0671 (1.487)		0.0702* (2.166)	0.0742* (3.192)	0.0940* (3.203)	0.0742* (3.192)	0.0510 (1.598)		0.1087 (1.052)		0.0298 (0.314)		0.0897 (0.892)	
Japanese Bidder (dummy)	0.0010 (0.057)	0.0014 (0.084)		-0.0156 (-1.018)		-0.0099 (-0.740)		-0.0071 (-0.558)		-0.0233 (-1.989)		-0.0304 (-0.846)		-0.0526 (-1.579)		-0.0470 (-1.564)	
Taiwanese Bidder (dummy)	0.0000 (0.002)	0.0049 (0.259)		-0.0194 (-1.185)		-0.0212 (-1.273)		-0.0117 (-0.742)		-0.0362* (-2.390)	-0.0066 (-0.978)	-0.0056 (-0.127)		-0.0380 (-0.900)		-0.0250 (-0.666)	
Australian Bidder (dummy)	0.0058 (0.287)	0.0087 (0.444)		-0.0081 (-0.420)		-0.0234 (-1.540)		-0.0190 (-1.267)		-0.0313* (-2.062)	-0.0067 (-0.5762)	0.1116* (2.362)	0.1128* (2.300)	0.0892 (1.900)		0.0987* (2.214)	0.1128* (2.300)

Table 5.5 reports regression coefficients for three different control regressions for three different dependent variables. Figures in parentheses are t-statistics testing the null-hypothesis that the coefficients found are equal to zero. Coefficients in bold and marked with an asterisk are significant at the 5 percent level.

of the weighted combined merger revaluation by their size, it could be expected that deal size would matter. The bigger a deal, the greater the impact should be on the acquirer's stock. Apparently, the size of the deal that the bank is pursuing does not matter and it is not the case that larger institutions make the better acquisitions. This finding is inconsistent with existing literature by, for example, Tourani Rad & Van Beek (1999) who find lower abnormal return effects for deals involving smaller targets. It could be argued that the larger bidders have more resources to find and chase the most profitable deals. But, this is not the case for this sample. However, relative size variables should do a better job at revealing size effects. It is, therefore, a lot more surprising that the variable examining relative size, MKTRATIO, is not significant either. As the event study points out, targets more often experience highly significant positive abnormal returns. As the relative size of the target increases, greater emphasis is put on the abnormal return of the target and higher abnormal returns are expected for the deal as a whole. This was the case in earlier research, such as that of DeLong (2001).

Control variables concerning profitability appear to be much more important in explaining abnormal returns. Target ROA in particular is very significant. The more profitable the target under acquisition, the higher the abnormal returns for the bidder and for the merger revaluation. This is not consistent with the theory of profitable companies looking for poorly performing targets with a lot of room for improvement. The market appears to have more appreciation for the acquisition of profitable institutions. This is consistent with a significantly negative coefficient for relative profitability (ROADIFF). The best performing mergers are not between players with large differences in profitability. Ideally, this discrepancy is as small as possible, together with prior profitability being as high as possible for both bidder and target. Existing literature shows mixed results on prior profitability of targets.

The final significant coefficients in the control regressions concern issues surrounding leverage. Bidder leverage has a significantly negative coefficient, while target leverage is assigned significantly positive results. In other words, the most successful mergers in terms of high abnormal returns for the bidder and in terms of a high weighted combined merger revaluation are between bidders with low levels of debt-to-capital and targets with high levels of debt. An explanation lies in one of the most important reasons why companies add debt to their capital structures in the first place: the tax-deductibility of the costs of debt. Imagine a company with high levels of debt, with no remaining tax from which to deduct interest of and in financial distress because of the high levels of interest payable on their debt. This, consistent with results of the cross-sectional analysis, would be an ideal candidate to be taken over by a bank with low levels of debt and with excess taxable income.

Apart from an Australian country bias, the data supports evidence that on announcement date Taiwanese bidders show relatively low abnormal returns. According to the dummy coefficient, diversifying mergers do not significantly differ in performance from other mergers.

CHAPTER 6: Conclusions

After witnessing consolidation in the American and European banking industry, the Asia-Pacific region is rapidly catching up and banks are exploring their markets not in the least by engaging in M&A activity. This paper, by presenting an event study, examines the information Asian investors derive from merger announcements in the financial industry and investigates how these investors price this information. The main findings include significantly positive abnormal returns to bidders and targets and significantly positive weighted average merger revaluations. These abnormal return effects are primarily obtained in the five day run-up to the merger announcement date and on the merger announcement date. Bidders experience a correction in abnormal returns in the days after the merger, but target abnormal returns remain significantly positive in the longer term event window $[-10,+10]$. The abnormal returns on announcement date itself also prove significantly positive for targets. According to the calculated weighted combined merger revaluations, investors in the Asia-Pacific region are optimistic about merger plans as a whole. Asian investors may welcome the idea of companies tapping into other markets as they realize that the banking industry can further develop in many parts of relatively 'under-banked' Asia. The fact that the largest part of abnormal return is achieved in the period running up to merger announcement, suggests that investors are already anticipating M&A activity to take place. This could be the result of rumors following information leakage from the banks. This premature reaction also constitutes a rejection of the EMH in semi-strong form. Even though information has not yet been published, security prices are already moving accordingly.

Significantly positive abnormal returns to bidders have not previously been found in existing literature. The finding that targets experience higher abnormal returns than bidders is more in line with previous research and is consistent with bidders paying premiums for their targets. At a statistical level, targets and bidders even differ significantly from one another. This, however, is not the case when comparing the players of the sub groups created by cluster analysis, although differences do arise. The bidders and merger revaluations (driven more by abnormal returns to bidders than by abnormal return to targets) lose their significantly positive performance in the diversifying sub sample. Abnormal returns to focusing bidders and merger revaluations concerning focusing M&A show significantly positive returns, while those related to diversifying mergers do not. Investors apparently do not value a diversifying M&A strategy for bidders positively. This is in line with much heard criticism of the motives of diversification as an M&A strategy. Investors are perfectly capable of diversifying their own investment portfolios themselves. They do not need the companies they invest in to do that for them and therefore do not reward such a strategy with positive abnormal returns.

The risk analysis conducted does not show any significant differences in risk profiles when comparing a period pre merger announcement to a period post merger consummation. Looking separately at total relative risk and systematic risk does not reveal any significant differences either. Mergers in the financial sector do not on average pose a concern risk-wise, not for market regulators mainly interested in total risk, nor for investors who mainly care about systematic risk, the risk component that offers compensation according to modern portfolio theories.

Whether a merger leads to focus or diversification of activity is not the only factor influencing abnormal returns to bidders, targets and weighted combined merger revaluation. Cross-sectional analysis did not reveal any noteworthy significant influences on target abnormal return, but did for the more active participant in the event, namely the bidder. Analyzing the coefficient of each of the control variables for bidder abnormal return did not reveal any significant size effects, but did find evidence for the relatively high importance of prior profitability and the capital structure of both the bidder and target. Two coefficients show significant results regarding profitability; target prior profitability is assigned a positive coefficient and the variable regarding the difference in profitability of bidder and target, a negative one. This is not consistent with the hypothesis that the most successful mergers let the assets flow to the better managed companies. It is not the case that the most successful mergers are with poorly performing targets. It is found that, bidders can better acquire a target with high prior profitability and show a prior profitability themselves that is as high as possible. Regarding capital structure, the mergers resulting in the highest abnormal return are between highly leveraged targets and bidders with low levels of debt. The reason for this is that mergers of this nature can take optimal advantage of the potential tax benefits resulting from mergers.

The results of event studies analyzing abnormal return effects around merger announcements should be handled with caution. These results are merely reflections of investors' expectations. High abnormal returns surrounding a merger announcement definitely do not guarantee the success of a merger in the long run in terms of actual performance. A suggestion for further research is therefore an analysis of the actual performance of the new entity in the long term and comparing that to the initial reaction of the stock market at the time of merger announcement.

Academics have always struggled to be enthusiastic about M&A and a paradox has sprung from that. If research shows that M&A do not normally create value, why do managers continue to seek them in such large numbers? This paper has shown that this paradox is certainly not applicable to mergers in the financial sector in the Asia-Pacific region for this sample period as merger announcements resulted in significantly positive abnormal returns for most of the parties involved.

REFERENCES

- Acharya, V.V., I. Hasan and A. Saunders, 2006, Should banks be diversified? Evidence from individual bank loan portfolios, *Journal of Business* 79 (3), 1355-1412
- Amihud, Y., G.L. DeLong and A. Saunders, 2002, The effects of cross-border bank mergers on bank risk and value, *Journal of International Money and Finance* 21, 857-877
- Baele, L., O. De Jonghe and R. Vander Venet, 2007, Does the stock market value bank diversification?, *Journal of Banking and Finance* 31, 1999-2023
- Bessler, W. and J.P. Murtagh, 2002, The stock market reaction to cross-border acquisitions of financial services firms: an analysis of Canadian banks, *Journal of International Financial Markets, Institutions and Money* 12, 419-440
- Boyd, J.H., S.L. Graham and R.S. Hewitt, 1993, Bank holding company mergers with nonbank financial firms: effects on the risk of failure, *Journal of Banking and Finance* 17, 43-63
- Brown, S.J. and J.B. Warner, 1985, Using daily stockreturns: the case of event studies, *Journal of Financial Economics* 14, 3-31
- Buch, C.M. and G. DeLong, 2004, Cross-border bank mergers: what lures the rare animal?, *Journal of Banking and Finance* 28, 2077-2102
- Chong, B.-S., M.-H. Liu and K.H. Tan, 2006, The wealth effect of forced bank mergers and cronyism, *Journal of Banking and Finance* 30, 3215-3233
- Cybo-Ottone, A. and M. Murgia, 2000, Mergers and shareholder wealth in European banking, *Journal of Banking and Finance* 24, 831-859
- De Jonghe, O. and R. Vander Venet, 2008, Competition vs. efficiency: what drives franchise values in European banking, *Journal of Banking and Finance* 32, 1820-1835
- DeLong, G.L., 2001, Stockholder gains from focusing versus diversifying bank mergers, *Journal of Financial Economics* 59, 221-252
- Focarelli, D., F. Panetta and C. Salleo, 2002, Why do banks merge?, *Journal of Money, Credit and Banking* 34 (4), 1047-1066

- Frieder, L.A. and V.P. Apilado, 1983, Bank holding company expansion: a refocus on its financial rationale, *The Journal of Financial Research* 6 (1), 67-81
- Hannan, T.H. and J.D. Wolken, 1989, Returns to bidders and targets in the acquisition process: evidence from the banking industry, *Journal of Financial Services Research* 3, 5-16
- Houston, J.F., C.M. James and M.D. Ryngaert, 2001, Where do merger gains come from? Bank mergers from the perspective of insiders and outsiders, *Journal of Financial Economics* 60, 285-331
- Houston, J.F. and M.D. Ryngaert, 1994, The overall gains from large bank mergers, *Journal of Banking and Finance* 18, 1155-1176
- Huizinga, H.P., J.H.M. Nelissen and R. Vander Venet, 2001, Efficiency effects of bank mergers and acquisitions in Europe, *Universiteit Gent Faculteit Economie en Bedrijfskunde Working Paper*, 106
- Ketchen, Jr, D.J. and C.L. Shook, 1996, The application of cluster analysis in strategic management research: an analysis and critique, *Strategic Management Journal* 17, 441-458
- Lubatkin, M. and H.M. O'Neill, 1987, Merger strategies and capital market risk, *The Academy of Management Journal* 30 (4), 665-684
- Pasiouras, F., C. Gaganis and C. Zoupounidis, 2006, Regulations, supervision approaches and acquisition likelihood in the Asian banking industry, *University of Bath School of Management Working Paper*, 19
- Penas, M.F. and H. Unal, 2004, Gains in bank mergers: evidence from the bond markets, *Journal of Financial Economics* 74, 149-179
- Rhoades, S.A., 1994, A summary of merger performance studies in banking, 1980-93, and an assessment of the "operating performance" and "event study" methodologies, *Board of Governors of the Federal Reserve System*, Washinton D.C.
- Rhoades, S.A., 1998, The efficiency effects of bank mergers: an overview of case studies of nine mergers, *Journal of Banking and Finance* 22, 273-291
- Scholes, M. and J. Williams, 1977, Estimating betas from nonsynchronous data, *Journal of Financial Economics* 5, 309-327

Tourani Rad, A. and L. Van Beek, 1999, Market valuation of European bank mergers, *European Management Journal* 17 (5), 532-540

Vaihekoski, M., 2009, A note on the calculation of the risk free rate for tests of asset pricing models, *Turku School of Economics and Lappeenranta University of Technology, School of Business*

White, H., 1980, A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity, *Econometrica* 48 (4), 817-838

Wilcoxon, F., 1945, Individual comparisons by ranking methods, *Biometrics Bulletin* 1 (6), 80-83

APPENDIX

A

Table A.1: List of Events

Event	Announcement Date	Bidder	Country	Target	Country
1	12-25-2007	Mizuho Financial Group Inc	Japan	Credit Saison Co Ltd	Japan
2	09-26-2007	China Minsheng Banking Corp	China	Shaanxi Intl Trust & Invest Co	China
3	03-19-2007	Bank of Queensland Ltd	Australia	Bendigo Bank Ltd	Australia
4	11-27-2006	ANZ Banking Group Ltd	Australia	AMMB Holdings Bhd	Malaysia
5	10-13-2006	Sumitomo Trust & Banking Co	Japan	STB Leasing Co Ltd	Japan
6	10-12-2006	Suncorp-Metway Ltd	Australia	Promina Group Ltd	Australia
7	08-21-2006	Shinhan Financial Group Ltd	South Korea	LG Card Co Ltd	South Korea
8	05-19-2006	Millea Holdings Inc	Japan	Nisshin Fire & Marine Ins	Japan
9	05-10-2006	Shinsei Bank Ltd	Japan	Jih Sun Financial Holding Co	Taiwan
10	05-05-2006	Union Bank of the Philippines	Philippines	International Exchange Bank	Philippines
11	03-27-2006	Australian Stock Exchange Ltd	Australia	SFE Corp Ltd	Australia
12	02-27-2006	Siam Commercial Bank PCL	Thailand	Siam Panich Leasing PCL	Thailand
13	11-08-2005	Taiwan Cooperative Bank	Taiwan	Farmers Bank of China	Taiwan
14	10-25-2005	Fuhwa Financial Hldg Co Ltd	Taiwan	Yuanta Core Pacific Sec Co Ltd	Taiwan
15	07-22-2005	Taishin Finl Hldg Co Ltd	Taiwan	Chang Hwa Coml Bank Ltd	Taiwan
16	06-30-2005	SinoPac Financial Hldgs Co Ltd	Taiwan	International Bank of Taipei	Taiwan
17	05-21-2004	Nishi-Nippon Bank	Japan	Fukuoka City Bank Ltd	Japan
18	04-26-2004	Hokugin Financial Group Inc	Japan	Hokkaido Bank Ltd	Japan
19	04-06-2004	UOB	Singapore	Bank Buana Indonesia PT	Indonesia
20	03-23-2004	Mitsubishi Tokyo Financial Grp	Japan	Acom Co Ltd	Japan
21	02-24-2004	Oversea-Chinese Bkg Corp Ltd	Singapore	Great Eastern Hldgs Ltd	Singapore
22	01-28-2004	Thai Military Bank PCL	Thailand	IFCT	Thailand
23	07-02-2003	Chinatrust Finl Hldg Co Ltd	Taiwan	Grand Commercial Bank	Taiwan
24	01-20-2003	CPH Investment Corp	Australia	Challenger International Ltd	Australia
25	12-02-2002	Meiko National Securities Co	Japan	Sakura Friend Securities	Japan
26	11-27-2002	LGCI	South Korea	LG Electronics Investment Ltd	South Korea
27	09-12-2002	Commerce Asset-Holdings Bhd	Malaysia	Bank Niaga Tbk PT	Indonesia
28	08-12-2002	Cathay Financial Hldg Co Ltd	Taiwan	UWCCB	Taiwan
29	08-07-2002	Fubon Financial Holding Co Ltd	Taiwan	Taipei Bank Co Ltd	Taiwan
30	05-09-2002	Taishin Finl Hldg Co Ltd	Taiwan	Taiwan Securities Co Ltd	Taiwan
31	05-07-2002	CTB Financial Holding Co	Taiwan	ICBC	Taiwan
32	04-08-2002	Shinhan Financial Group Ltd	South Korea	Good Morning Securities Co Ltd	South Korea
33	02-21-2002	ORIX Corp	Japan	Fuji Fire & Marine Insurance	Japan
34	06-12-2001	Oversea-Chinese Bkg Corp Ltd	Singapore	Keppel Capital Holdings Ltd	Singapore
35	03-27-2001	Sanyo Shinpan Finance Co Ltd	Japan	Mycal Card Inc	Japan
36	02-13-2001	DBS Group Holdings Ltd	Singapore	Vickers Ballas Holdings Ltd	Singapore
37	11-01-2000	Yasuda Fire & Marine Insurance	Japan	Nissan Fire and Marine Ins Co	Japan
38	10-31-2000	Setouchi Bank	Japan	Hiroshima Sogo Bank	Japan
39	09-18-2000	Tokio Marine & Fire Insurance	Japan	Nichido Fire and Marine Insur	Japan
40	05-19-2000	Macquarie Infrastructure Group	Australia	Infratil Australia Ltd	Australia
41	03-22-2000	Nippon Fire & Marine Insurance	Japan	Koa Fire & Marine Insurance	Japan
42	03-09-2000	Commonwealth Bank of Australia	Australia	Colonial Ltd	Australia
43	03-01-2000	Dai-Tokyo Fire & Marine Ins Co	Japan	Chiyoda Fire & Marine Ins Co	Japan
44	02-17-2000	Tokyo Securities Co Ltd	Japan	Tokai Maruman Securities Co	Japan
45	01-22-2000	National Australia Bank Ltd	Australia	St George Bank Ltd	Australia
46	10-21-1999	BPI	Philippines	Far East Bank & Trust Co	Philippines
47	10-13-1999	Southern Bank Bhd	Malaysia	Ban Hin Lee Bank Bhd	Malaysia
48	09-17-1999	Maybank	Malaysia	Pacific Bank Bhd	Malaysia
49	05-17-1999	Bank of Osaka, Ltd	Japan	Bank of Kinki Ltd	Japan
50	05-07-1999	Sanwa Bank Ltd	Japan	Siam Commercial Bank PCL	Thailand
51	03-24-1999	New Japan Securities Co Ltd	Japan	Wako Securities Co Ltd	Japan

B

Regression coefficients and autocorrelation coefficient needed to calculate Scholes & Williams consistent beta-coefficients:

$$b_i = \frac{\text{cov}(r_{it}, r_{Mit})}{\text{var}(r_{Mit})} \quad (\text{B.1})$$

$$b_i^- = \frac{\text{cov}(r_{it}, r_{Mit-1})}{\text{var}(r_{Mit-1})} \quad (\text{B.2})$$

$$b_i^+ = \frac{\text{covar}(r_{it}, r_{Mit+1})}{\text{var}(r_{Mit+1})} \quad (\text{B.3})$$

and

$$\rho_{MI} = \frac{\text{cov}(r_{MI}, r_{Mit-1})}{s(r_{MI})s(r_{Mit-1})} \quad (\text{B.4})$$

C

Bibliography

Books

Aczel, Amir D. and Jayavel Sounderpandian, *Complete Business Statistics*, 5th ed, New York: McGraw-Hill, 2002

Romesburg, H. Charles, *Cluster Analysis for Researchers*, Lifetime Learning Publications, 1984

Bernard, Victor L., Paul M. Healy, Krishna G. Palepu and Erik Peek, *Business Analysis and Valuation*, IFRS edition, London: Cengage Learning EMEA, 2007

Articles

Broaddus, Jr, J. Alfred, *The Bank Merger Wave: Causes and Consequences*, Federal Reserve Bank of Richmond, Economic Quarterly, Volume 84/3, Summer 1998

Gautheron, Pascal, *The Rise of the Asian Banking Powerhouses*, Accenture, 2008

Sar, Nico L. van der, *Event-studies: Methodologische Aspecten*, Vakgroep Financiering en Belegging, Erasmus Universiteit Rotterdam, 2008