Mergers and acquisitions in the international insurance industry

MERGERS AND ACQUISITIONS IN THE
INTERNATIONAL INSURANCE INDUSTRY

Jianzhong Tan

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requirements for the degree of Doctor of
Philosophy at the University of New South Wales**

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DEDICATION

To my family

CANDIDATE'S STATEMENT

Certificate of Originality

I hereby declare that this submission is my own work to the best of my knowledge it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at UNSW or any other educational institution, except where due acknowledgement is made in the thesis. Any contribution made to the research by others, with whom I have worked at UNSW or elsewhere, is explicitly acknowledged in the thesis.

I also declare that the intellectual content of this thesis is the product of my own work, except to the extent that assistance from others in the project's design and conception or in style, presentation and linguistic expression is acknowledged.

Jianzhong Tan

1st May 2014

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ABSTRACT

This dissertation consists of four self-contained studies on mergers and acquisitions in the international insurance industry. In particular, it focuses on the wealth effects of merging parties and their competitors, change of risks and risk management, determinants of wealth effects, determinants of the risk changes, and managers and investors learning by observing information spilled over from previous merger activities.

The first study investigates the risk and valuation change experienced by European banks when they acquire insurance companies. The empirical results indicate that total risk and systematic risk generally remain the same while positive wealth effects are documented. This finding supports the argument that regulators do not need to be overly concerned about bank and insurer mergers possibly introducing volatilities to the financial services industry. Past research on Bancassurance mainly focuses on the US market. Bancassurance is very popular in Europe and a study of this market is missing. This study fills the gap.

The second study examines risk and wealth effects arising from domestic and cross-border mergers and acquisitions among insurance firms around the globe. The study extends insurance M&A literature by revealing that quality governance and favourable macro-economic conditions in the target firm's country determine risk and wealth effects, as well as transaction and firm-specific factors. The study also applies Seemingly Unrelated Regression (SUR) to study the intra-industry effects with a sample of 40 firms.

The third study extends the previous chapter by examining competitors' wealth effects in the global banking and insurance industry arising from mergers and acquisitions. The sample contains a total of 6474 competitors, with 5267 banks and 1207 insurance firms. The empirical results indicate that rival firms are reassessed as next potential

targets, this being a result of acquisition events. Investors revalue competitors according to an acquirer's over-bidding premium and the rival firm's characteristics.

The fourth study provides evidence that insurance firm mergers result in improvements in long-term financial performance, and reduction in risk, and those improvements are significantly related to previous M&A activities. Past research proves that bank managers and investors have learnt from previous merger activities in regards to wealth creation (DeLong and DeYoung 2007). This insurance merger study contributes to literature by extending the research to include the risk management perspective. The empirical results support the argument that risk management is a main consideration in Mergers and Acquisitions, as well as wealth creation. In a high uncertainty environment, insurance mergers are a new phenomenon for managers and investors. Managers learned from previous M&As in order to create wealth and reduce risk, while investors wrongly evaluated those mergers. Our findings are consistent with semi-strong market efficiency.

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CHAPTER 1

INTRODUCTION

Financial services industry deregulation, the General Agreement on Trade in Services (GATS), technological advances, and bold national and regional regulatory and economic reforms over the last few decades have paved the way for deregulation and increased volume of activity in the financial industry across countries. More than 10,000 financial firms were acquired during the period of 1990 − 2001 (Amel et al. 2004), and over 9,000 listed financial firms were acquired between 2002 and June 2013, according to Thomson Reuters data. Among them, almost 600 transactions have a deal value greater than $1 billion. Financial powerhouses, such as AXA in Europe or Citigroup in the US, have emerged. Researchers have widely shown their interests in mergers and acquisitions in the financial services industry, particularly in regard to banks. Some of the questions posed in past studies are these. What are the wealth and risk effects? What are the determinants of those effects? How do managers deal with mergers in a new and changing environment?

Past literature has shown a few studies on bancassurance. Genetay and Molyneux (1998) review European bancassurance and its historical roots. Fields et al (2004) study banks merge with insurance firms during year 1997 and 2002. There are no consistent empirical results found among different studies. Carow (2001a) report that both life insurer and large bank increase in stock price in the Citicorp-Travelers Group merger, while Carow (2001b) found that insurance companies stock prices drop as a result of allowing banks to sell insurance products. Fields et al (2004) claim both parties rise in stock prices when US banks merge with insurance firms. There is no empirical study on banks merge with insurers in the European market. This paper fills the gap and empirically studies the effects of mergers and acquisitions between banks and insurance companies in Europe.

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Berger et al (2004), Campa and Hernando (2006) and Pasiouras and Tanna (2010) review the regulatory development behind the rise in financial companies' cross-border acquisitions. Both international banks and insurance firm mergers are studied separately in past literature. For instance, Buch and Delong (2004) study cross-border bank mergers during 1985 to 2001. Cummins et al (1999) report that mergers benefit the performance of life insurance firms in the US. Cummins and Weiss (2004) study the consolidation in the European insurance industry. Cummins and Xie (2008) examine mergers in the US property-liability insurers. This paper is the first study that discovers that country governance factors are key determinants of global insurance company merger. The paper comprehensively examines the wealth effects of bidder, targets and rival firms, and studies the determinants factors from aspects of macro-economy, governance and transaction-specific characters.

Furthermore, the paper studies the intra-industry effects of mergers in banking and insurance industry. Past studies do not have agreements on the intra-industry effects and reasons behind the effects. Past literature divides into four groups in explaining the intra-industry effects. The first group argues increase in market concentration or increased efficiency improves profit among the largest players (Akhigbe and Madura (1999)). The second group claims increased probability of a rival firm becoming next takeover target. Findings from Mulherin and Boone 2000, Andrade, Mitchell and Stafford 2001 and Andrade and Stafford 2004 are consistent with this view. The third group proposes investors are not able to access the value of acquisitions due to rapid change in regulations, technologies, industry structure, and mergers profiles (DeLong and DeYoung 2007). This view implies that intra-industry effects cannot be explained. The last group explains the intra-industry effect as the increase in collusion among rival firms (Eckbo 1983 and Shahrur 2005). The paper report significantly negative wealth effects are experienced by bidders and significantly positive effects are experienced by both targets and rivals. The result is consistent with the hypothesis that a merger event transmits an intra-industry signal that the probability of rival firms becoming a target increases. The paper reports firm-specific characteristics such as firm size and book-to-market value are determinants of the intra-industry effects. It

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supports the view that investors interpret the M&A effect as a signal that rival firms are more likely to become the next takeover target.

Technology has advanced; financial industry deregulation and climate change have brought tremendous uncertainties to managers and investors in the global insurance industry during the last decades. In the evolving insurance industry, market participants may misunderstand available information, particularly when the events is a new phenomenon and appears complex to them. Changes in the industry after mergers bring economy shocks that can diver long-run performance from short-run valuation. In a changing environment, the original response of a semi-strong efficient market can become an inefficient valuation of a long-run forecast. In another word, short-term valuation to a merger may not perfectly reflect long-term performance of the merged firm. DeLong and DeYoung (2007) develop a set of methodologies and hypotheses to study learning-by-observing abilities of managers and investors in US banking M&A execution and valuation. This dissertation apply the same methodology framework to insurance industry and extend the study to both valuation and risk management effects. Past studies have posted the question whether risk is a consideration in mergers and acquisitions (see Amihud 1981 and Stulz 1996). More recently, Hankins (2009) argues that risk management is a primary corporate decision and reports that acquisition provide operational hedging to bank holding companies by lowering probable expensive volatility. Garfinkel and Hankins (2011) document that risk management motivations significantly drive M&A activities and waves. This dissertation contribute to current literature and examine whether managers successfully achieve risk management motivation in M&A activities, and further, whether managers and investors observe and learn from previous M&A activities with respect to risk management.

In summary, building on past studies, the aim of this dissertation is to fill in very important gaps and make significant contribution to the literature.

1. To examine bank-insurance mergers in Europe.

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2. To Study insurance mergers around the globe and demonstrate that a set of governance factors is a determinant of wealth effects.

3. To examine intra-industry effects of banking and insurance M&A activities.

4. To test the hypothesis that managers have learned by observing spilled-over information from past insurance mergers to improve firms' risk management, as well as financial performance.

Similar to banks, insurance firms have been increasingly active in M&A activities. There are 2204 M&A announcements in the 1980s, 8846 in 1990s and 9903 in the 2000s reported in Thomson Reuters SDC Platinum. Bank-insurer combinations have been especially popular among European firms (e.g. the creation of ING in 1991 by the merger of the largest Dutch insurer and third largest Dutch bank, or Allianz acquiring Dresdner Bank in 2001). However, insurance M&A studies are relatively fewer compared to banks and this dissertation attempts to strengthen the literature in this area.

This dissertation consists of four self-contained studies on insurance mergers and acquisitions, which can be read independently. Each study contains an introduction, conclusion and relevant literature reviews. An overview of the dissertation is provided here, and the way in which the different sections are linked will be illustrated.

Bancassurance is expected to bring efficiency and increase productivity in some European countries. Empirical results of past M&As studies on Bancassurance are not consistent with each other, and there is no study particularly of the European market where Bancassurance is very popular. Chapter 2 attempts to shed additional light on this topic by empirically examining the effects of bank acquisition of insurers in Europe. Market reaction and stock price risk are studied in this chapter. Transaction-specific and firm-specific factors are examined as wealth effect determinants.

Chapter 3 studies the wealth and risk effects of insurance firm mergers around the world, both domestic and cross-border. This chapter is the first study to relate governance to M&A wealth effects and proves the argument empirically. It also confirms past studies that macro-economic and transaction-specific characters are significantly related to wealth effects. With a relatively small sample of 40 rival firms, this chapter reports intra-industry effects using the Seemingly Unrelated Regression (SUR) method.

Chapter 4 further studies the intra-industry effects arising from M&As in the financial industry with improved methodology, using a much larger sample containing both banks and insurance firms. The empirical results support the proposition that rival firms are reassessed as next potential targets. Rival firms' wealth effect is significantly related to acquirers' over-bidding premium.

Chapter 5 poses these questions: whether managers can improve long-term financial performance and risk management, and whether managers and market investors learn by observing information spilled over from past mergers and acquisitions in the insurance industry. This chapter applies the frameworks developed by DeLong and DeYoung (2007) on the study of bank mergers and extends the research to the risk management area. The empirical results support the proposition that risk management is improved, and is consistent with recent studies, for example Hankins (2009) and Garfinkel and Hankins (2011), who argue that risk management motivates corporate managers to make mergers and acquisitions decisions.

Chapter 6 concludes and discusses implications for policy makers and researchers.

CHAPTER 2

DOES BANCASSURANCE ADD VALUE TO BANKS? – EVIDENCE FROM MERGERS AND ACQUISITIONS BETWEEN EUROPEAN BANKS AND INSURANCE COMPANIES

2.1 Introduction

The Uruguay round of trade negotiations paved the way for deregulation of the financial services industry in most parts of the world. Both banking and insurance companies have developed and consolidated their operation over the past few decades. One of the consequences of these deregulations has been the emergence of bancassurance[1] services. As deregulation of the financial services industry intensified, a number of Asian countries such as China, India, Japan and Singapore, amongst others, have allowed bancassurance to be practised. Similarly, in a number of European countries, one can note a significant portion of life insurance business is handled by banks. The emergence of bancassurance contributed to overall efficiency, an increase in economies of scope and an increase in productivity of both banks and insurance companies in some of the European countries. In addition, as reported by Swiss Re, 2002, bancassurance has led to lower or stable distribution cost compared with career agents in Asia.

In the past, there were a few studies related to bancassurance across the world. For example, Genetay and Molyneux (1998) have a comprehensive review of bancassurance in Europe including its historical roots. Fields et al (2004) analyse the wealth effects of 136 banks and insurance mergers among US and non-US companies over the period 1997 and 2002. However, the empirical results are not consistent with each other. For instance, Carow (2001a) found that the Citicorp-Travelers Group

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[1] Bancassurance is defined "as a strategy adopted by banks or insurance companies aiming to operate in the financial services market in a more or less integrated manner" and "is the distribution of insurance products by banks." (Swiss Re 2002, page 5).

merger increased stock price in both life insurance companies and large banks in the US, while Carow (2001b) found that the consequences of allowing banks to sell insurance products in the US led to a reduction in insurance company stock prices. Fields et al (2004) found that bancassurance deals lead to a win-win situation for both bidder-target firms in the US. There is no empirical study on European bancassruance market yet. European market is important because Europe has different legislations compared with other markets, such as US. The 1989 Second Banking Coordination Directive was announced in 1989 and started the deregulation of financial sector in Europe. The EU's single insurance market directive (effective since July 1, 1994) allows the European-based insurance companies to operate throughout Europe on the principle of a single license. Facing strong competition from European banks, the bancassurance may be the better strategy for both banks and insurance companies to survive and operate in European markets.

The purpose of this study is to shed additional light on this issue by empirically studying the effects of mergers and acquisitions between banks and insurance companies in Europe. The empirical results, based on the Thomson Financial Securities Data Merger and Acquisition Database list of 72 deals between 1989 and 2004, show that acquirers' total risks remain constant relative to the world and home market indices, and home banking indices in the full sample. The systematic risks (beta) for the world market index and home banking index do not change. The beta risk for the home banking index is reduced significantly for domestic deals. In addition, positive wealth effects are documented for the whole sample and domestic deals and the bidder's change of beta is negatively related to the bidders' cumulative abnormal returns (CARs). The deal size relative to the bidder bank's market value and being a serial acquirer are found to be positively related to the bidders' CARs.

The remainder of this chapter is organized as follows. Section 2.2 discusses the methodology used to measure Bancassurance acquisition risk and abnormal returns. Section 2.3 discusses the data used. Section 2.4 reports the empirical results, and Section 2.5 concludes.

2.2 Methodology

To analyse the risk, similar to the study by Amihud et al (2002), this study compares the acquirer's risk one year prior to the acquisitions announcement with the acquirer's risk one year after the acquisition becomes effective. Thus, as for total relative risk, pre-merger risk is evaluated over the period of (-260, -11) before the date of the merger announcement and the post-merger risk over the period (+11, +260) after the merger's completion date. The world banking index is converted to the currency of the acquirer's home country in order to be consistent with the stock return of the acquirer, and then returns are calculated based on the converted world banking index.

2.2.1 Total Relative Risk and Systematic Risk

Similar to Amihud et al (2002), we measure the change in risk profile of the acquiring firm arising from the acquisition through the change in total relative risk (ΔTRR) and the change in systematic risk ($\Delta\beta$).

2.2.1.1 Total relative risk

Total relative risk (TRR) is measured by the ratio of the variance of the firm's returns to the variance of returns on three indices: the world market index, the home market index and the home banking index.

2.2.1.2 Systematic risk

Systematic risk is measured by the beta coefficient of the acquirer's stock return relative to the returns on the three indices: the world market index, the home market index after controlling for the effect of the world market index, and the home banking index after controlling for the effect of both the world market index and the home market index.

2.2.2 Abnormal Returns

Abnormal returns are measured relative to the world market index, the home market index and the home banking index. We consider a 20-day period event window

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surrounding the announcement of the merger, from 10 days before the merger announcement to 10 days after (days -10 to +10). The event window of 20 days captures possible leakage of information before the merger is announced. We then analyse investor reaction to changes in total risk as well as to changes in systematic risk. After the deal is completed, the long-term performance is also analysed by estimating the cumulative abnormal return during the period between the 11th and the 510th day after the deal becomes effective.

2.3 Data

We examine mergers during 1980 and 2004 where the acquirer is a bank located in Europe and the target is an insurance company also mainly located in Europe. There are a total of 72 deals in our sample, 61 target insurance companies are located in Europe and 11 are located in Argentina, Chile, Columbia, Hong Kong, Mexico, Morocco, and the United States. After the acquisition, the acquirer owns more than 20% of the target. The Thomson Financial Securities Data Merger and Acquisition Database list 213 such deals between 1983 and 2004. This study considers those acquisitions where the acquirer's stock is actively traded and daily stock return data and other relevant data are available. Out of the 213 deals, some of the acquirers are classified as real estate developing companies and support service companies. Because those companies' main business is not banking, their deals are not included in our sample. To examine the long term wealth effect of acquisitions, acquirer daily share price of two years after deal effective is downloaded. Some events are excluded due to acquirers with no active trading or with less than two years trading history after deal effective. The data source is DataStream. There are 72 mergers in our final sample and the final sample period is 1989-2004.

One can see the national identities of acquirers and targets from Table 2-1, Panel A. (source: Thomson Financial Securities Data). Although, one could observe that banks in the Spain, UK and Italy are active in acquiring, there is no bank acquirer in countries such as Bulgaria, Czech Republic and Greece. Larger or more financially established countries would have more acquirers. The largest number of acquirers is in Spain while Italy has larger number of targets.

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As can be seen, the number of mergers in each year in our sample is reported in Table 2-1, Panel B. The first deal in our sample is in 1989, and the bancassurance mergers events are most active in years 2000 and 2001 in Europe.

Most of the targets were not listed on exchanges and we can only find share market information for 3 of them. Due to the lack of share data for targets, we focus on the risk effects and wealth effects for the bank acquirers.

The events companies are listed in 18 exchanges. Dividend adjusted index values are downloaded. The indices include world market index for whole market, home market index and home banking index listed on those exchanges. There is no dividend-adjusted index in Iceland and the dividend unadjusted index is used as a proxy for that country.

The exchange rates of the acquirer's countries are collected. There are 15 acquirer countries and 16 currencies including Euro. One-month interbank interest rates are collected for all the acquirer's home countries.

DataStream is the source for index, foreign exchange rate and interest rate data.

2.4 Empirical Results

2.4.1 Risk Profile

Similar to Amihud et al (2002), this chapter measures the change in the acquiring bank's risk profile through the change in total relative risk (ΔTRR) and the change in systematic risk ($\Delta\beta$). The methodology and approach are adapted from Amihud et al (2002).

The first risk, total relative risk (TRR), is measured by the ratio of the variance of the bank's returns to the variance of the returns on three indices: the world market index,

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Table 2-1: Bancassurance, mergers and acquisitions between European banks and insurance companies, 1989-2004

Panel A: National identities				Panel B: No. of mergers p.a.	
Country	Acquirers	Targets		Year	No. of deals
Argentina	0	1		1989	1
Belgium	7	0		1991	2
Bulgaria	0	1		1992	5
Chile	0	2		1993	1
Colombia	0	4		1994	4
Cyprus	1	1		1995	2
Czech Republic	0	3		1996	1
Denmark	3	4		1997	5
France	4	3		1998	3
Germany	4	3		1999	9
Greece	0	1		2000	17
Hong Kong	0	1		2001	13
Hungary	0	2		2002	1
Ireland-Rep	1	2		2003	5
Italy	11	11		2004	3
Mexico	0	2		Total	72
Morocco	0	1			
Netherlands	4	2			
Poland	1	3			
Portugal	6	4			
Spain	13	5			
Sweden	4	3			
Switzerland	1	2			
Turkey	1	1			
United Kingdom	11	8			
United States	0	2			
Total	72	72			

The sample consists of mergers where the acquirer is a bank in Europe and the target is an insurance company. The acquirer owns at least 20% of the target after the acquisition, and the acquirer lists on a stock exchange for which daily return data are available. The merger is announced between 1989 and 2004. Data sources: Thomson Financial Securities Data Worldwide Mergers, Acquisitions & Alliances Databases

the home market index, and the home banking index. For firm j and index k, TRR can be written as

$$TRR_{j,k} = \frac{Var(R_j)}{Var(RIndex_k)},$$ (2.1)

R_j is the daily return on acquirer j and the $RIndex_k$ is the return on the index k, where k = world market, home market and home banking. Pre-merger risk is evaluated over the period (-260, -10) before the announcement date for the merger and

post-merger risk over the period (+10, +260) after the effective date of the merger. We then calculate the change in the total relative risk, $\Delta TRR_{j,k}$,

$$\Delta TRR_{j,k} = TRR_{j,k}(\text{after}) - TRR_{j,k}(\text{before}) \tag{2.2}$$

In addition to examining the results for the entire sample, we divide the sample into sub-samples according to whether the mergers were cross borders: domestic mergers or cross-border mergers. We tested the null hypothesis that the change in total relative risk (ΔTRR) equals to zero and the test results are in table 2-2.

The results neither support total risk decrease after merger nor support total risk increase. In Panel A of Table 2-2, it shows that bidder banks do not experience significant change in total relative risk (TRR) relative to any of the three indices. The results are consistent with Fields et al. (2004) that there is no effect on the bidder's total risk. In their cross-border bank merger study, Amihud et al. (2002) report a weak indication of reduction in bidder's relative risk, and in general, there is no significant change to total risk.

We then examine the attribution of the two sub-samples. For a domestic deal, one would expect an effect of reduction in total risk because the bank diversifies its business into insurance operation. Comparing a cross-border acquisition to a domestic one, on one hand, a further reduction of risk is expected because of geographic diversification; however, on the other hand, the bank merged with a foreign insurer exposes to foreign exchange rate risk and monitoring related risk. It would be intuitive to find out whether the risk reduction effects are stronger or weaker than the risk increase effects for cross-border deals. Our results show that neither domestic deals nor cross-border deals reduce bank's total risk after the acquisition. For a domestic merger, there can a high correlation between the share prices of bidder bank and target insurer before merger because both companies are in the same financial system in same country. Therefore, the diversification effect is not significant after the acquisition. In the case of a foreign bid, the risk reduction and increase effects can offset each other and neither of the effects is dominant. We take logarithm of TRR and redo the test. The results are shown in Panel B and they similar to Panel A. Almost all measures

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indicate marginal decrease in risk but not statistically significant. It could be argued that banks merged with insurance companies tend to reduce more in their total risk relative to world market indices after the acquisition completed.

Both industry diversification and geographic diversification would be able to reduce systematic risk in relation to a specific industry of one country. After a bank acquires an insurance company, some of its income is generated from the insurance business. It is expected that after the merger, covariance between the acquirer's return and its home banking index will be lower. For the merger which involves taking over an insurance company overseas, the acquirer's return will show a weaker covariance with both its home market index and its home banking index. In relation to the world market index, however, one would expect an increase of systematic risk due to the acquirer has a greater exposure to the world market after merging with a company in the insurance business. The second risk, systematic risk, is measured by the bank's beta coefficient based on a three-factor market model involving three indices: the world market index, the home market index and the home banking index. Similar to Amihud et al (2002), the estimated model for the return of stock j on day t, $R_{j,t}$, is

$$
\begin{aligned}
R_{j,t} = \alpha_j &+ \alpha_{1j}D_t + \beta_{\text{world},j}RI_{\text{world},t} + \gamma_{\text{world},j}RI_{\text{world},t}D_t \\
&+ \beta_{\text{home},j}RI^*_{\text{home},t} + \gamma_{\text{home},j}RI^*_{\text{home},t}D_t \\
&+ \beta_{\text{homebanking},j}RI^*_{\text{homebanking},t} + \gamma_{\text{homebanking},j}RI^*_{\text{homebanking},t}D_t + \mu_{j,t},
\end{aligned}
\tag{2.3}
$$

where $RI^*_{\text{home},t}$ is the home market index return after removing the effect of world market index, $RI_{\text{world},t}$. $RI^*_{\text{homebanking},t}$ is the home banking index return after removing the effect of both the world market index and the home market index. $RI^*_{\text{home},t}$ is the residual obtained by regression of home market index returns, $RI_{\text{home},t}$, on the world market index return, $RI_{\text{world},t}$. $RI^*_{\text{homebanking},t}$ is the residual obtained by regression of home banking index returns, $RI_{\text{homebanking},t}$, on the world market index return, $RI_{\text{world},t}$, and home market index, $RI^*_{\text{home},t}$. D_t is a dummy variable, $D_t = 0$ for days -260 to day -10 before the merger announcement, and $D_t = 1$ for days +10 to +260 after the consummation of the merger.

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Table 2-2: Change in total risk

Panel A	ΔTRR (world market index)			ΔTRR (home market index)			ΔTRR (home banking index)		
	Mean	Median	% positive	Mean	Median	% positive	Mean	Median	% positive
	t-statistics		*t-statistics*	*t-statistics*		*t-statistics*	*t-statistics*		*t-statistics*
Entire sample	-0.964	-1.5369	42.31	-0.3460	-0.3009	42.31	0.1629	-0.0469	46.15
	-0.98		*-0.78*	*-0.79*		*-0.78*	*0.32*		*-0.39*
Domestic deals	-0.625	-0.4894	50.00	-0.3360	-0.3009	40.00	0.2836	-0.0469	45.00
	-0.51		*0.00*	*-0.62*		*-0.89*	*0.44*		*-0.44*
Cross-border deals	-2.094	-1.7710	16.67	-0.3820	-0.4152	50.00	-0.2400	-0.0698	50.00
	-1.52		*-2.00*	*-0.60*		*0.00*	*-0.75*		*0.00*

Change in total risk (taking logarithm of TRR)

Panel B	ΔTRR (world market index)			ΔTRR (home market index)			ΔTRR (home banking index)		
	Mean	Median	% positive	Mean	Median	% positive	Mean	Median	% positive
	t-statistics		*t-statistics*	*t-statistics*		*t-statistics*	*t-statistics*		*t-statistics*
Entire sample	-0.183	-0.2185	42.31	-0.0570	-0.1350	42.31	-0.0560	-0.0531	46.15
	-1.16		*-0.78*	*-0.41*		*-0.78*	*-0.36*		*-0.39*
Domestic deals	-0.114	-0.1258	50.00	-0.0600	-0.1350	40.00	-0.0540	-0.0531	45.00
	-0.60		*0.00*	*-0.35*		*-0.89*	*-0.27*		*-0.44*
Cross-border deals	-0.411	-0.2931	16.67	-0.0460	-0.1696	50.00	-0.0630	-0.0476	50.00
	-1.74		*-2.00*	*-0.22*		*0.00*	*-0.41*		*0.00*

Change in the acquiring bank's variance of daily stock return relative to the variance of three indices: world market index, acquirer home market index and acquirer home banking index.

$TRR_{j,k}$ = total relative risk of acquirer $j = \dfrac{Var(R_j)}{Var(RIndex_k)}$. R_j is the daily stock return on acquirer j and $RIndex_k$ is the return on index k, where $k =$ world market, acquirer home market, and acquirer home banking. $\Delta TRR_{j,k} = TRR_{j,k}(\text{after}) - TRR_{j,k}(\text{before})$, where "before" is days -260 to -10 before the merger announcement, and "after" is days +10 to +260 after the merger becomes effective. The t-statistics test the hypothesis that $\Delta TRR_{j,k} = 0$, and the proportion of $\Delta TRR_{j,k} > 0$ is 0.5.

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Change in systematic risk is then given by the difference of these two measures:

$$\Delta\beta_{kj} = \beta_{kj}(\text{after}) - \beta_{kj}(\text{before}) = \gamma_{kj} \qquad (2.4)$$

Table 2-3 presents results of the change in systematic risk. There is no significant change in systematic risk against the world market index. The result is consistent with Fields et al (2004), who do not find any changes in variances of bidder stock prices or their betas, although they find low correlations between bank and insurer stock returns before mergers, which indicates a potential diversification effect. For the entire sample, the beta coefficient against home market index increases significantly at 10% confidence level. However, no significant change of systematic risk to home market index is reported for the two sub-samples respectively. There is a weak indication that beta of banks acquiring foreign insurers increase against their home market index. That is, majority of the cross border deals, 67% of them, $\Delta\beta$ (home market index) is greater than zero. This is consistent with Amihud et al (2002), who report an increase of home market beta coefficient of acquirers after cross-border merger. They also find evidence that it is because the covariance between the banking industry and the home market increases during the study period of one year; and the banking industry includes banks involved in merger and those did not made any acquisition. In order to capture the change of bidder's systematic risk in relative to banking industry, we examine the third measure of beta, $\Delta\beta$ (home banking index). This measure removes the effect of world market index and home market index. The results in table 2-3 shows that the systematic risk of all the banks does not change significantly in relative to home banking index, and the beta risk against the home banking index reduces significantly for domestic mergers. After acquisitions, insurance business contributes income to the bidder bank therefore the share of banking income reduces, thus the bidder bank's return is expected to have a weaker covariance with the home banking index. When the insurance company return is coming from a foreign country, the covariance is expected to be further reduced. Surprisingly, the expectation about foreign merge is not supported by our results. The results in Table 2-3 report no significant change of beta risk against home banking index for cross-border deals. Amihud et al. (2002) showed that the acquirer's beta do not change against home banking index as a result of a cross border merger. Our result is consistent with their findings. Both the $\Delta\beta$ (home market

index) and Δβ (home banking index) are measures of change of systematic risk for domestic market; table 2-3 appears to show results contradict to each other. A possible explanation is the covariance between home banking index and home market index changes during the measurement period. In the perspective of bank regulators, home market index is a better benchmark.

In general, the results in table 2-3 reassure the bank regulators that deregulation of financial services industry does not increase insolvency risk to the acquirer's home country banking system.

2.4.2 Abnormal Returns and Cumulative Abnormal Returns

In this section, the chapter breaks down stock returns into a systematic and a non-systematic return component to represent event-related return and market return. This chapter considers the sources of systematic returns from three indices: the world market index, the home market index and the home banking index. Interest rate changes are found to have impact on bank stock returns. Flannery and James (1984) reported that bank stock returns correlate with changes of interest rates. Elyasiani and Mansur (1995) found that interest rate and its volatility directly impact the mean and volatility of the bank stock returns. We include the change of interest rate in our equation below. Foreign exchange rate change is another factor we need to consider in our equation. Fang and Loo (1996) documented foreign exchange rate risk affect international asset return significantly.   The chapter measures the wealth effect with cumulative abnormal returns using one of the following models to estimate the expected rate of return[2]:

$$\hat{R}_{j,t} = \alpha_j + \alpha_{1j}INT_t + \alpha_{2j}FX^*_t + \beta_{\text{world},j}RI^*_{\text{world},t} \tag{2.5}$$
$$+\beta_{\text{home},j}RI^*_{\text{home},t} + \beta_{\text{homebanking},j}RI^*_{\text{homebanking},t} + \mu_{j,t},$$

$R_{j,t}$ is the return on acquirer j on day t. INT_t is the daily return of the acquirer

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[2] GARCH effect is reported for daily stock return time series data by previous studies. For each bank's stock returns, we tested the presence of GARCH (1,1) effect related to equation (2.5). It is found that majority of the daily stock returns present GARCH effect. It is an interesting question itself to model the GARCH effect for daily stock return and it is not analysed here.

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Table 2-3: Change in systematic risk

	Δβ (world market index)			Δβ (home market index)			Δβ (home banking index)		
	Mean	Median	% positive	Mean	Median	% positive	Mean	Median	% positive
	t-statistics		*t-statistics*	*t-statistics*		*t-statistics*	*t-statistics*		*t-statistics*
Entire sample (72)	-0.0260	0.0005	50.00	0.0685	0.0629	58.33	-0.0560	-0.0388	47.22
	-0.86		*0.00*	*1.67**		*1.42*	*-1.38*		*-0.47*
Domestic deals (41)	-0.0540	-0.0171	41.46	0.0691	0.0088	51.22	-0.1150	-0.0553	43.90
	-1.16		*-1.10*	*1.12*		*0.15*	*-2.07***		*-0.78*
Cross-border deals (31)	0.0105	0.0245	61.29	0.0678	0.0714	67.74	0.0212	0.0070	51.61
	0.31		*1.27*	*1.32*		*2.08***	*0.37*		*0.18*

Table 2-3 reports the change in beta coefficient of the acquirer's return after the merger compared to beforehand.

$$R_{j,t} = \alpha_j + \alpha_{1j} D_t + \beta_{world,j} RI_{world,t} + \gamma_{world,j} RI_{world,t} D_t$$
$$+ \beta_{home,j} RI^*_{home,t} + \gamma_{home,j} RI^*_{home,t} D_t$$
$$+ \beta_{homebanking,j} RI^*_{homebanking,t} + \gamma_{homebanking,j} RI^*_{homebanking,t} D_t + \mu_{j,t}$$

is used. $R_{j,t}$ is the return on acquirer j on day t, $RI_{world,t}$ is the world market index return on day t, $RI^*_{home,t}$ is the residuals from a regression of the respective acquirer home market index return on $RI_{world,t}$. $RI^*_{homebanking,t}$ is the residuals from a regression of the respective acquirer home banking index return on $RI_{world,t}$ and $RI^*_{home,t}$. D_t is a dummy variable that is zero for days -260 to day -10 before the merger announcement, and one for day +10 to day +260 after the completion of the merger. $\Delta\beta_{k,j} = \gamma_{k,j}$.

*, ** represent 10 percent and 5 percent significant levels, respectively

country's one month interbank interest rate; FX_t is the daily return of the acquirer country's currency exchange rate against US dollar; $RI_{world,t}$, $RI_{home,t}$ and $RI_{homebanking,t}$ are daily returns of the world market index for whole market, home country stock exchange market index and home country stock exchange banking index, the world market index value is converted to local currency terms before calculating the daily return. Considering correlations among the interest rates, the foreign exchange rates and the index returns, FX^*_t is orthogonalised to INT_t; $RI^*_{world,t}$ is orthogonalised to INT_t and FX^*_t; $RI^*_{home,t}$ is orthogonalised to INT_t, FX^*_t and $RI^*_{world,t}$; and $RI^*_{homebanking,t}$ is also orthogonalised to INT_t, FX^*_t, $RI^*_{world,t}$ and $RI^*_{home,t}$. We ran a linear regression of FX_t on INT_t and the residual is denoted as FX^*_t; then we ran linear regression of $RI_{world,t}$ on INT_t and FX^*_t, the residual is denoted $RI^*_{world,t}$; then we ran linear regression of $RI_{home,t}$ on INT_t, FX^*_t and $RI^*_{world,t}$, the residual is denoted as $RI^*_{home,t}$; then we ran a linear regression of $RI_{homebanking,t}$ on INT_t, FX^*_t, $RI^*_{world,t}$ and $RI^*_{home,t}$, the regression residual is denoted as $RI^*_{homebanking,t}$.

Similar to study by Amihud et al (2002), in this study, the model is estimated over days -260 to -10 before the announcement day. Then the abnormal return for stock j on day t, $AR_{j,t}$ can be written as:

$$AR_{j,t} = R_{j,t} - \hat{R}_{j,t} \tag{2.6}$$

This chapter then calculates the daily average abnormal returns (AARs) over the period -10 days to +10 days surrounding the announcement using the standard procedure. We computed the AARs for the whole sample and sub-samples depending on whether the deals are domestic or cross-border.

Finally, the chapter computes several different event-windows' cumulative abnormal return by summing up the relevant abnormal returns, to account for possible leakages

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of information. Table 2-4 reported the short term wealth effects for bidder firms surrounding the announcement date.

$$CAR = \sum_{t=-n}^{+m} AR_{j,t} \qquad\qquad (2.7)$$

Table 2-4 Panel A shows the AARs from 10 days before announcement to 10 days after the announcement. The AARs are calculated as weighted average of abnormal returns, and the weight is the inverse of its standard error. Cumulative Abnormal Returns (CARs) of some typical event-study windows are shown in Panel B of Table 2-4 as well. Both the entire sample and the domestic deals report significant positive CARs for event windows day -1 to 1. Domestic bidder banks also reports another significant positive results for event window day 0 to 1. No significant CAR is reported for cross-border acquirers. The results of the event study indicate that in the short-term there is a positive market reaction towards those bancassurance deals, especially for domestic deals.

The significant positive CARs imply that market perceive a bank merging with an insurance company is a synergy creation activity, especially for a domestic deal. Investors expect more stable ROE, increased fee-based income from bancassurance. The merger of a bank and an insurer allows them to share customer base, and it would be easier and more cost effective to achieve customer sharing when the two companies operate in the same country.

Houston et al (2001) found that the premium paid for the target is less than the estimated gains associated with a merger. They argued that one should not rule out the possibility that often acquiring bank managers are too optimistic in predicting the gains associated with their merger plan. Computing symmetric cumulative abnormal returns, Cybo-Ottone and Murgia (2000) reported that they observed a positive CAR for a diversified merger. However, they find a negative market reaction in the case of M&A by a bidding bank.

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In other bank mergers event studies, Zhang (1995) reported that the weighted average CAR for the window of (-2, +2) is 7%, Pilloff (1996) reported a mean value weighted CAR of 1.44% for the eleven days (-10, 0), and Houston and Ryngaert (1994) show a mean value weighted CAR of 0.4% for five days (-4, 0). Fields et al. (2004) report strong evidence that both bidder and targets experience positive event data abnormal returns, and the abnormal returns are mainly derived from acquisitions involving public targets.

To estimate the bidders' long term wealth effect, we then estimate the following three-factor model of the bank acquirer returns over the period (-260, -10) before the announcement date and period (+10, +510) after the effective date of the deal. The results are reported in Panel C of Table 2-4, and two year after the deal becomes effective, although the entire sample and the domestic deals CARs are both positive, neither of them is significant.

2.4.3 Determinants of Cumulative Abnormal Returns

In this section, we try to use some variables[3] to explain those positive CARs which we observed in Table 2-4. Since the world market index is the most diversified index among the three indices we use in equation (2.3), the change in systematic risk on the world market index is included as one variable. We also run a regression of CARs against all three changes of beta measures; the change of beta against world market index is the only factor that has a statistical significant effect on CARs. This supports that we include the change of beta against world index as one of the possible determinant factors in our regression equation. We also include some other factors that are supported by theories as determinants of market reaction to an acquisition. Managers in big organisation are more likely to involve in empire building activity and scarify shareholders benefit to make acquisition they should not have done. And they

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[3] It should be noted that one of the factors that could be relevant to market reaction is the way the payment is processed, as explained by DeLong (2001). By referring to a few researchers, DeLong (2001) clarified that often when bidders pay cash for acquisitions they could earn more than those paying stocks. It is argued that one reason for this is because bidders would pay using stocks if they know that their stock is overvalued. In any case in this study, there are only 4 deals in which 100% of the payment was made with stocks, we do not include payment method as a variable in our analysis.

Table 2-4: Wealth effect

Panel A: Average abnormal return over -10 days to +10 days surrounding the announcement date
(Each abnormal return is weighted by the inverse its standard error)

	Entire sample		Domestic deals		Cross-board deals	
	AAR(%)	t-statistics	AAR (%)	t-statistics	AAR (%)	t-statistics
Day -10	0.03	0.20	0.63	2.82**	-1.18	-4.84**
Day -9	-0.06	-0.37	-0.22	-0.98	0.10	0.43
Day -8	-0.06	-0.38	-0.20	-0.89	0.05	0.19
Day -7	-0.34	-2.08**	-0.59	-2.62**	-0.83	-3.42**
Day -6	0.03	0.16	0.20	0.87	-0.27	-1.09
Day -5	-0.13	-0.80	-0.30	-1.33	-0.16	-0.67
Day -4	0.02	0.12	0.29	1.28	-0.51	-2.08**
Day -3	-0.17	-1.00	-0.14	-0.64	-0.70	-2.88**
Day -2	0.09	0.52	0.32	1.41	-0.16	-0.65
Day -1	0.14	0.80	0.04	0.19	0.73	3.00**
Day 0	0.30	1.77*	0.37	1.60	1.01	4.15**
Day 1	-0.01	-0.07	0.48	2.14**	-1.13	-4.59**
Day 2	-0.20	-1.16	-0.71	-2.95**	0.30	1.22
Day 3	-0.09	-0.52	0.05	0.21	-0.63	-2.59**
Day 4	-0.04	-0.25	-0.03	-0.14	-0.19	-0.77
Day 5	0.09	0.54	0.45	2.02**	-0.44	-1.82*
Day 6	-0.05	-0.32	-0.39	-1.74*	0.53	2.16**
Day 7	0.17	1.01	0.40	1.76*	0.16	0.66
Day 8	0.21	1.27	0.20	0.91	0.85	3.50**
Day 9	0.23	1.38	0.31	1.39	0.72	2.95**
Day 10	0.04	0.23	0.04	0.18	0.14	0.58

Panel B: Cumulative abnormal return surrounding the announcement date

	Entire sample		Domestic deals		Cross-board deals	
	CAR(%)	t-statistics	CAR (%)	t-statistics	CAR (%)	t-statistics
Day -10 to 2	-0.26	-0.44	0.08	0.09	-0.72	-0.81
Day -1 to 1	0.58	1.99**	0.74	1.87*	0.36	0.85
Day 0 to 1	0.35	1.50	0.72	2.24**	-0.13	-0.38
Day 0 to 2	-0.16	-0.55	-0.33	-0.84	0.07	0.16
Day 0 to 3	-0.15	-0.45	-0.21	-0.47	-0.07	-0.14

Panel C: Cumulative abnormal return one year after the bancassurance becomes effective

	Entire sample		Domestic deals		Cross-board deals	
	CAR(%)	t-statistics	CAR (%)	t-statistics	CAR (%)	t-statistics
Day +11 to +510	1.37	0.37	4.09	0.81	-2.23	-0.41

In Table 2-4, it reports the average abnormal returns (AAR) and cumulative abnormal returns (CAR) surrounding the merger announcement, and cumulative abnormal returns (CAR) one year after the merger effective date.

$$\hat{R}_{j,t} = \alpha_j + \alpha_{1j}INT_t + \alpha_{2j}FX^*_t + \beta_{world,j}RI^*_{world,t} + \beta_{home,j}RI^*_{home,t} + \beta_{homebanking,j}RI^*_{homebanking,t} + \mu_{j,t},$$

is used to estimate the expected return, and the estimate-window is (-260, -11) before the announcement date. $R_{j,t}$ is the return on acquirer j on day t, INT_t is the daily return of the acquirer country's one month interbank interest rate; FX_t is the daily return of the acquirer country's currency exchange rate against US dollar; $RI_{world,t}$, $RI_{home,t}$ and $RI_{homebanking,t}$ are daily returns of the world market index for whole market, home country exchange market index and home country exchange banking index, the world market index value is converted to local currency terms before calculating the daily return. We ran a linear regression of FX_t on INT_t and the residual is denoted as FX^*_t; then we ran linear regression of $RI_{world,t}$ on INT_t and FX^*_t, the residual is denoted $RI^*_{world,t}$; then we ran linear regression of $RI_{home,t}$ on INT_t, FX^*_t and $RI^*_{world,t}$, the residual is denoted as $RI^*_{home,t}$; then we ran a linear regression of $RI_{homebanking,t}$ on INT_t, FX^*_t, $RI^*_{world,t}$ and $RI^*_{home,t}$, the regression residual is denoted as $RI^*_{homebanking,t}$. Panel A reports AAR 10-day surrounding the announcement date. Panel B reports CAR surrounding the announcement date. Panel C reports CAR two years after the merger effective date.

*, ** represent 10 percent and 5 percent significant levels, respectively.

may potentially overpay for the deal. We use the log of acquirer firm size as a proxy to capture this effect. The smaller the target size is relative to the bidder, one would expect a weaker effect of the merger on the bidder, which will lead to a smaller market reaction. Acquiring firms may pay a premium for the target in order to gain definite

control. A control dummy variable is used to capture the effect. Comparing to a similar foreign deal, a domestic deal is expected to incur less incorporating cost. The cross-border dummy variable is to test whether the domestic deals drive the significant positive CARs results. Some researches support that market react positively to deals made by serial acquires. Asquith, Bruner and Mullins (1983) find that multiple bidders return remain positive through the fourth bid. Fuller, Netter and Stegemoller (2002) find that serial bidder shareholders gain when buying a private firm. The serial-acquirer dummy variable accounts for the potential difference between serial acquirer and non-serial acquirer. The regression equation is as follows,

$$CAR_j = \alpha_0 + \alpha_1 \Delta\beta_{\text{world},j} + \alpha_2 \log(\text{firm size}_j) + \alpha_3 (\text{relative deal size}_j)$$
$$+ \alpha_4 D_{Cross-border,j} + \alpha_5 D_{Control,j} + \alpha_6 D_{Serial-Acquirer,j} + \varepsilon_j,$$
(2.8)

where CAR_j is the short-term cumulative abnormal return for stock j over the event-widow (-1, 1); α_0 is intercept; $\Delta\beta_{\text{world},j}$ is the change of systematic risk on the acquirer's world market index for stock j; $\log(\text{firm size}_j)$ is the log of market value of the acquirer stock; relative deal size is defined as the ratio of transaction value to the market value of the acquirer stock; $D_{Cross-border,j}$, is a dummy variable, equal to one if the deal is cross-border, and equal to zero if the deal is domestic; $D_{Control,j}$ is a dummy variable, equal to one if the deal results in the bank gaining definite control over the target insurance company (increasing the ownership from lower than 50% to more than 50%), equal to zero otherwise; $D_{Serial-Acquirer,j}$ is a dummy variable, equal to one if the deal is made by a serial acquirer, and equal to zero if the deal is not done by a serial acquirer. A serial acquirer is a bank has had more than 3 mergers during the sample period (where 3 is derived from the rounded number of 1 standard deviation above the mean number of mergers per bank during the sample, and the rounded mean number of mergers per bank is 2); and a non-serial acquirer is a bank has had less than or equal to

3 mergers during the sample period. The results of the regression are reported in Table 2-5.

Table 2-5: Determinants of short-term wealth effect

Variable	-1	-2	-3
Adjusted R-Square	0.1094	0.1061	0.1251
Constant	-0.0122	-0.0134	-0.0039
t-statistics	*-0.56*	*-0.57*	*-0.63*
$\Delta\beta 1$	-0.0267	-0.0261	-0.0253
t-statistics	*-2.07***	*-2.22***	*-2.13***
log (firm size)	0.0009	0.0008	
t-statistics	*0.44*	*0.40*	
relative deal size	0.0156	0.0159	0.0147
t-statistics	*4.81***	*4.72***	*5.58***
cross-board dummy	-0.0078		-0.0077
t-statistics	*-0.84*		*-0.83*
control dummy	0.0076	0.0069	0.0074
t-statistics	*1.19*	*1.08*	*1.19*
serial-acquirers dummy	0.0155	0.0130	0.0155
t-statistics	*1.67**	*1.67**	*1.70**

Table 2- 5 reports the regression of CAR on changes of systematic risks and other variables.

*, ** represent 10 percent and 5 percent significant levels, respectively.

One would expect that the acquiring bank's expected rate of return decreases, when risk, more specifically systematic risk, decreases. In this case, since the bank's cash flows remain unchanged, one would expect to see its value increase. Thus, in the shorter term, one would expect to see some positive CARs in Table 2-4. On the other hand, when risk, more specifically systematic risk, increases one would expect to see an increase in the expected rate of return of the acquiring bank. In this case, one would expect to see the bank's value decrease, if the bank's cash flows remain unchanged. In this case, one could expect some negative CARs. It should be noted that an increase in risk will lead to an increase in stockholders wealth at the expense of debt holders and vice versa. In other words, there will be a transfer of wealth from one group to another subject to the type of risk. For instance, the systematic risk decline after a bank merges with an insurance company. The debt holders are better protected as the assets of the two previously separated firms support the debt. The debt holders increase their wealth as the debt of a merged firm is less risky. But the shareholders' wealth is not increased, because shareholders now have to guarantee each others' debt.

Our result reports that the bidder's change of beta is significantly negatively related to CARs and is consistent with traditional asset pricing theory that when the systematic risk decrease, the expected return decrease, which leads to an increase in bank value. Amihud et al. (2002) report that acquirer's CARs appear to be unrelated to changes in beta risk. Fields et al. (2004) found that the bidder's beta change is significantly negatively related to its abnormal return for deals involving public targets.

Another significant factor is relative deal size; the larger the deal size relative to the bidder bank's market value, the more synergy is created. Most of the target firms in our sample are not listed in any stock exchange, bidders are less likely to overpay private firm because private firms are mostly closely controlled and the market liquidity of trading private firms is generally low. Koeplin, Sarin and Shapiro (2000) found that private companies sell for a statistically and economically significant discount compare to public companies. The larger size the target comparing to bidder bank, the lager amount of discount is expected by the market. Our result is consistent with Asquith et al (1983) that there is a positive relationship between the relative size of the target firm's equity and the bidding firms' cumulative excess return.

In our result, the cross-border dummy is not significantly related to short-term effects. This is not consistent with Fields et al (2004). This is because our study is on European banking and most targets are located in Europe; while Fields et al (2004) examine a mix of U.S. and non-U.S. mergers. As stated in paragraph 2 of page 6, the EU's single insurance market directive (effective since July 1, 1994) allows the European-based insurance companies to operate throughout Europe on the principle of a single license. In our data sample, the barrier is relatively low for a bank to enter the insurance market by taking over an insurance firm in a different country within the Euro Zone. Cybo-Ottone and Murgia (2000) found that the dummy for domestic deals was significantly positively related to value-weighted abnormal returns in their European banking mergers study.

We use serial-acquirers dummy as the last variable, and the results report significant positive t-statistics. This implies that serial-acquirers are better in creating synergy. The result is consistent with Asquith et al. (1983) and Fuller et al. (2002).

2.5 Conclusion

This chapter is the first comprehensive study of the risk and wealth effects of mergers and acquisitions between banks and insurance companies on the acquiring European banks. While there have been a number of studies dealing with M&A in banking, lack of data has prevented previous researchers from fully analysing the effects of M&A between banks and insurance companies, particularly with a focus on Europe. The evolution of the financial services industry including its deregulation in many parts of the world as well as more data about banks and insurance companies operation has provided an opportunity to study M&A between banks and insurance companies in Europe.

The empirical results indicate that while acquirers' total risks remain constant relative to the world market index, home market index and home banking index in the full sample and both sub-samples. There is also no change of systematic risk for world market index and home banking index. The bidder banks acquiring domestic insurers experience significant negative change of systematic risk to home banking index after removing the effect of world market index and home market index. In addition, positive wealth effects are documented for both domestic and all the deals and the bidder's change of beta is negatively related to the bidder's cumulative abnormal returns (CARs). The deal size relative to the bidder bank's market value is found to be positively related to the bidders' cumulative abnormal returns (CARs). Serial acquirers have significant positive relationship with the bidders' cumulative abnormal returns (CARs).

Given these empirical results, one could argue that the growth of Bancassurance mergers appears to have effect only on the systematic risk of the European banking system in domestic deals. However, it is evident that the market rewards bidder banks

because of synergy creation expectation with the acquisition. However, M&A between banks and insurers do not result in synergy creation in the long run. At the same time, one can also observe that domestic deals between banks and insurance companies would be more beneficial, as the less incorporating cost incurred.

CHAPTER 3

WEALTH AND RISK EFFECTS ARISING FROM INSURANCE MERGERS AND ACQUISITIONS

3.1 Introduction

The process of financial globalisation over the last few decades has paved the way for deregulation and increased activities volume in the financial industry across countries. Amel et al. (2004) show that more than 10,000 financial firms in developed countries were acquired during the period of 1990-2001, with 246 deals exceeding $1 billion. Based on Thomson Reuters data, over 22,000 financial firms were acquired worldwide and 460 transactions have a deal value greater than $1 billion after January 2002 and before July 2010. Worldwide M&As experienced strong growth during the 1990s and overall volume reached $3.5 trillion in the year 2000. The global volume dropped in the following two years to around $1.3 trillion. Between 2002 and 2007, global M&A activities experienced further strong growth and the overall volume reached a record high of $4.7 trillion.

The financial industry has had a significant portion of market share over many years, and stays at the top position in transaction values by target industry for the years 2007-2009; it accounts for 20% of market share in 2009. While the recent global financial crisis may have slowed down, on a short term basis, some of the M & A activities, all indications are that financial institutions have resumed their M & A activities. In the first half of 2010, worldwide M&A was valued at $1.1 trillion, with over 19,000 deals announced. Global M&A activities increased 9.4% in the first half of 2009-2010, and had the strongest opening since 2008. Financial acquirers are ranked number one and account for 32.9% of total M&As deal values. Financial services industry deregulation, the General Agreement on Trade in Services (GATS), technological advances, and bold national and regional regulatory and economic reforms have provided the impetus for a widespread restructuring of the financial services sector and have facilitated the

emergence of financial powerhouses, such as AXA and Allianz in Europe, or Citigroup in the US.

In a comprehensive study, the Group of Ten (2001) documents that banks account for 60% of all financial mergers in the 1990s and 70% of the value of those mergers. Insurance companies have been active players in the field as well, representing over $75 billion in total deal value. Arena (2008) argues that the insurance market experienced accelerated growth in the last two decades. He states that "Total written real premiums for all countries increased by 82 percent between 1997 and 2004…from US$1.6 trillion to US$2.9 trillion." (pp.921). Eling and Luhnen (2009) report that the international insurance market grew steadily in terms of technical and cost efficiency during 2002-2006. Based on Thomson Reuters data, the transaction value of insurance firms by target is $13.75 billion in the first half of 2010 and accounts for 14% of worldwide M&A announcements in the financials. Bank-insurer combinations have been especially popular among European firms (e.g. the creation of ING in 1991 by the merger of the largest Dutch insurer and third largest Dutch bank, or Allianz acquiring Dresdner Bank in 2001). While the majority of deals involved domestic firms, cross-border transactions are increasingly contributing to the reshaping of the global insurance industry.

Previous studies review the regulatory developments behind the surge in financial firms' cross-border Mergers and Acquisitions. (Berger et al. (2004), Campa and Hernando (2006) and Pasiouras and Tanna (2010)). Past literature also studies insurance mergers either in the United States or Europe. For example, Cummins et al. (1999) document that M&As benefit life insurers' performance in the US. Cummins and Xie (2008) study M&As in the US property-liability insurance industry. Cummins and Weiss (2004) examine the consolidation in the European insurance industry. Past studies examine international bank mergers as well. For example, Buch and DeLong (2004) study international cross-border bank mergers occurring during 1985 and 2001. However, there is no comprehensive insurance merger study which covers transactions globally, examine both domestic and cross-border deals and examine determinants

factors from all aspects of macro-economy, governance and transaction-specific characters. This study fills that gap. This study analyses the wealth and risk effects arising from insurance company merger and acquisition activities. It is a comprehensive chapter which measures the wealth effects of bidders and targets, as well as of their rival firms. Further, this chapter explains the risk and wealth effects resulting from insurance companies' engagement in cross-border and domestic acquisitions.

Among our findings, total risk appears to decrease relative to both home and world finance indices. Systematic risks increase against home market and finance indices. Domestic deals create positive abnormal returns for acquirers, targets and their rival firms. For cross-border deals, neither bidders nor targets experience abnormal change in value, while their rival firms experience negative abnormal returns.

We also find that better governance in the target country relates to wealth creation and risk reduction during the merger. Among the transaction-specific characteristics, a larger bidder and/or a serial bidder tend to experience an increase in risk and a reduction in wealth. In contrast to results presented in Kiymaz (2004), macroeconomic factors appear to have virtually no role in explaining wealth changes for the acquirer. However, we find that they show significant impacts on an acquirer's total risk and wealth change. Abnormal growth rates in the target's economy tend to increase the acquirer's returns and reduce its risk. For cross-border deals, high foreign exchange rate volatility reduces bidder wealth and increases its total risk. While relatively high inflation in another country where a target firm is based relates to a decrease in acquirers' wealth, a higher correlation between bidder and target countries' economies increases acquirers' total risk.

The rest of the chapter is organized as follows: Section 3.2 describes the sample of insurance mergers. In Section 3.3, we present the methodology for measuring wealth and risk effects around merger announcements. We also discuss their determinants. Section 3.4 contains the empirical results. Section 3.5 summarises the results and concludes.

3.2 Literature Review

One significant motive for foreign investments and cross-border acquisitions in particular, is to sustain the firm's sales growth. In his seminal analysis, Vernon (1966) argues that firms expand overseas as their domestic market shows signs of saturation. Given that acquiring firms are essentially from developed countries, investing in emerging markets can be seen as purchasing an option on future growth. Gonzalez et al. (1997) find evidence that US firms with low sales growth and few investment opportunities are more likely to become acquirers of foreign firms, which tends to support the hypothesis that cross-border acquisitions are typically carried out by mature firms with abundant free cash-flows.

Increasing profits and cost efficiencies represents another case for undertaking acquisitions. Cummins et al. (1999) document that mergers and acquisitions have had a beneficial effect on the performance of the US life insurance industry. As in domestic transactions, economies of scale and scope can be achieved through cross-border acquisitions. In particular, financial firms can share their distribution networks and back-office infrastructure, thus spreading fixed costs over higher sales volumes to cut down average costs. Brand recognition and joint marketing efforts represent another source of competitive advantage that can be achieved by combining firms. In addition, Doukas and Travlos (1988) emphasise that firms with international operations have the flexibility to optimise the allocation of their resources across national boundaries. However, the benefits of international expansion might be conditioned by the firm's previous experience as well as the expected growth potential of the host country.

A favourable effect of foreign expansion is also to reduce the firm's business risk by diversifying its sources of income across geographic markets. Based on this observation, Agmon and Lessard (1977) advocate investing in multinational corporations as a way of achieving lower risk portfolios. Jacquillat and Solnik (1978) find, however, that US multinationals cannot be substituted for diversified international portfolios, for the reason that they tend to retain most of the risks associated with the US stock market. Insurance companies, on the other hand, may

benefit from international diversification as liability claims tend to present little cross-country correlation. In addition, Lewellen (1971) argues that the reduction in risk resulting from diversification allows a firm to increase its debt capacity, thus adding value to its shareholders. In that respect, Cybo-Ottone and Murgia (2000) detect evidence that announcements of cross-border acquisitions by European financial institutions are associated with a positive market reaction.

However, foreign acquisitions present specific risks compared to the more familiar domestic acquisitions. To start with, the economic and political environment in the host country may be less stable, especially if the acquired firm is from a developing country. Schneider and Frey (1985) find that political instability is the second most important determinant of foreign direct investments. In particular, there appears to be a negative relationship between FDI flows and the number of political strikes and scandals in countries receiving foreign investments. Aizenman (2003) gives a formal proof that a high level of macroeconomic volatility in an emerging market can negatively affect the profitability of a multinational's foreign investments. Click and Harrison (2000) show empirical evidence that the greater the proportion of a US firm's assets that are located in a foreign country, the lower the firm's return on assets. By regressing the Q ratio of US multinationals against different measures of their foreign involvement, they observe that markets do not value foreign assets as highly as domestic assets. Reeb et al. (1998) document a positive and statistically significant relationship between the level of systematic risk of a firm and the degree of that firm's internationalisation, which they attribute to political risk as well as currency risk. Foreign exchange risk represents, in effect, an additional layer of uncertainty affecting the profitability of the acquisition after local cash flows are converted into the acquirer's home currency. In the case of manufacturing firms, foreign exchange volatility is usually considered a positive determinant of a firm's decision to move its production base overseas in an attempt to harbour itself against currency fluctuations. For financial firms, however, as services are produced locally, exchange rate risk affects the firm's profits more than its cost structure.

Overseas acquisitions also present enormous challenges in terms of monitoring requirements. Ravenscraft and Scherer (1987) emphasise the difficulties involved in coordinating and integrating the operations of domestic acquisitions. By logical deduction, the risks involved in foreign acquisitions must be even higher. For instance, local managers may prefer to act in the interest of the subsidiary instead of the overall benefit of the parent company, thus substantially increasing agency costs. Language barriers and differences in customs, as well as distinct accounting systems, can cause further difficulties. Analysing valuation effects of security offerings by multinational firms, Wright et al. (2002) provide evidence of a more negative reaction for firms with a high foreign market exposure; which suggests that agency costs increase with the firm's degree of overseas involvement. However, Berger et al. (2004) suggest that recent developments in telecommunications, information processing and financial technology have mitigated the agency cost of monitoring far-distant subsidiaries.

Because of these opposite effects, and because of the differences between cross-border and domestic deals, it is unclear whether both cross-border and domestic acquisitions are creating shareholder value for bidder, targets and their rivals. It is also unclear whether they are contributing to reducing the acquirer's risk profile or not. A further question is what the key factors are to determine their change of wealth and risks. For this reason the remaining parts of this chapter attempt to analyse the wealth and risk effects of both cross-border and domestic acquisitions in the insurance sector, explain those effects, and examine how relevant the past studies of acquisitions are to our experience in the insurance industry.

3.3 Data Description

Our principal data source is the Thomson Financial Securities Data Worldwide Mergers & Acquisitions database, which covers public and private corporate transactions announced after January 1990. Our sample concerns potentially all transactions announced after January 1 1990 and completed by December 31, 2007, resulting in eighteen years of data and encompassing a large number of countries. There s a total of 1061 such deals. Sample transactions satisfy the following conditions:

(1) acquirers are incorporated in a country where an index of finance companies is tracked; the reason for this restriction derives from methodological issues and will become clear in the next section; (2) the bidder must have acquired direct control of the target after the transaction; the purpose of this condition is to allow the acquirer to take full advantage of any potential diversification benefits available. This condition is enforced by selecting transactions that resulted in the bidder owning no less than 50% of the target's common shares in order to ascertain absolute control. Further, before the transaction is completed, the acquirer owns less than 20% of the acquired firm's shares so as to exclude cases where the bidder could already have controlled the target; (3) both the bidder and target firms must be insurers according to their standard industry classification (SIC) number, which must be 63** or 64**. In addition, no contaminating news is released within a (-10, 2) days window around the announcement. Finally, the stock price series 260 days before the deal announcement and 260 days after the deal completion must be available from Datastream, so that returns and volatility changes can be computed. After filtering out those deals with missing data, there are 211 deals in our sample, of which 76 are cross-border deals, and the other 135 deals were made domestically. In this chapter, we study wealth and risk effects, determinants of the effects, and the relationship between wealth and risk changes on the cross-border mergers as well as domestic mergers.

Table 2-1 provides some perspectives on insurers' recent M&A activities. Panel A shows the deal numbers in each country while distinguishing acquirers from target companies. A rapid examination of the data reveals that all acquirers are from OECD countries, apart from one Israeli acquirer. This artificial twist derives from the fact that we have restricted our sample to transactions for which the acquirer's stock can be traced by a local finance index. Overall, US insurers lead the pack of acquirers with 121 deals, followed by The Netherlands insurers with 24 deals, and then other European insurance companies.

Panel B lists the number of transactions by announcement date. The transaction numbers increase over the years. In particular, the number of annual transactions in the

last three years is seen to be more than double that of other years' total, with 116 deals against 95 deals.

In testing the wealth effects of rival firms, we select the rival firms based on the following criteria. First, they are not one of the acquirers. For each country, the same rival insurers are included in the test of each announcement. Second, those rival insurers are actively trading on a stock exchange during the estimated period. In other words, share price information is available for the study. The study includes rival firms in most acquirers' home countries. The countries included are Australia, Canada, France, Italy, Switzerland and the United States. Israel, Netherlands and the United Kingdom are not included in this study because there are no rival insurers found in those countries based on our selection criteria. There is a total of 154 deals and 40 rival insurance firms included in the test. Panel C of Table 3-1 lists rival firms and transactions by country.

3.4 Methodology

3.4.1 Wealth Effect

3.4.1.1 Bidders and Targets

We compute abnormal returns following standard procedures. To separate event-related returns from market-wide returns, we first break down individual stock returns into a systematic and a non-systematic component. Two sources of systematic risk are considered for each acquirer: the home finance index RI_{Home} and the world finance index RI_{World}. The world finance index is converted to the acquirer's home country currency using daily foreign exchange rates. Noting that both indices can be highly correlated, we use a procedure similar to Amihud et al. (2002) for isolating home insurance returns from world insurance returns. The regression of RI_{Home} on RI_{World} over (-260, -11) days window before the announcement provides the home returns RI_{Home}^{*} not explained by world insurance returns. We then estimate the insurers' stock returns over the period (-260, -11) with a two-factor model:

Table 3-1: Distribution of transaction

Panel A: Origin of acquirers and targets / **Panel B: Year of transactions, domestic Vs foreign transactions**

Country	Bidder	Tgt.	Country	Bidder	Tgt.	Year	Dom	For	Tot
Argentina	0	3	Italy	4	9	1994	0	2	2
Australia	8	6	Japan	0	3	1995	0	2	2
Belgium	0	1	Mexico	0	2	1996	0	1	1
Bermuda	0	3	Netherlands	24	7	1997	3	3	6
Brazil	0	1	New Zealand	0	1	1998	4	6	10
British Virgin	0	1	Poland	0	2	1999	5	6	11
Canada	4	3	Romania	0	1	2000	11	1	12
Chile	0	3	Serbia	0	1	2001	5	8	13
Colombia	0	3	South Africa	0	1	2002	6	2	8
France	15	5	Spain	0	1	2003	14	3	17
Germany	6	3	Switzerland	11	2	2004	12	1	13
Greece	0	1	Taiwan	0	2	2005	25	9	34
Hong Kong	0	2	Ukraine	0	1	2006	24	8	32
Hungary	0	1	United Kingdom	17	15	2007	26	24	50
Ireland-Rep	0	2	United States	121	123				
Israel	1	1	Uruguay	0	1				
			Total	211	211	Total	135	76	211

Panel C: Distribution of sub-sample for rival firms wealth effects

Home Country	Transactions	Host Country	Transactions	Rival Firms
Australia	9	Australia	7	4
Austria	2	Canada	4	4
Canada	7	France	12	3
France	12	Germany	6	5
Germany	5	Italy	4	9
Italy	3	Switzerland	11	8
Netherlands	1	United States	110	7
Switzerlands	11			
United Kingdom	3			
United States	101			
Total	154		154	40

$$R_{j,t} = \alpha_j + \beta_{world,j} RI_{world,t} + \beta_{home,j} RI^*_{home,t} + e_{j,t} \qquad (3.1)$$

We subtract actual return from expected return to derive Abnormal Returns (ARs) over the (-10, +2) window. We compute Cumulative Abnormal Returns (CARs) over various windows (t_1, t_2) around the announcement date by summing up the relevant ARs. The length of the window is varied in order to capture any information leakages to the market and to determine in which windows the returns have the greatest significance.

$$AR_{j,t} = R_{j,t} - (\hat{\alpha}_j + \hat{\beta}_{world,j} RI_{world,t} + \hat{\beta}_{home,j} RI^*_{home,t})$$

$$CAR_j = \sum_{t=t_1}^{t_2} AR_{j,t} \qquad (3.2)$$

Event-induced variance introduces bias in estimating abnormal returns and leads to incorrect rejection of the null hypothesis. Boehmer, Musumeci and Poulsen (1991) use a standardised cross-sectional procedure to adjust the estimated variance in returns. Cummins and Weiss (2004) developed standardised Z-statistics for ARs and CARs to address the event-induced variance issue. Applying methodology proposed in Cummins and Weiss (2004), we use the inverse of sample stock return standard deviation as weights of ARs to calculate weighted average abnormal return (weighted AAR). We then divide the weighted AARs by the product of standard deviation of the weighted ARs and the square root of the number of events, and the result is z-statistic for the weighted AAR estimate. To adjust CARs, we use the inverse of the product of the number of days in the event window and variance of the sample stock return. We then divide the sum of weighted CARs by the product of the standard deviation of the weighted CARs and the square root of the number of events, in order to derive the z-statistics for weighted CARs estimate. Further, we calculate the number of positive ARs against negative ARs, and calculate t-statistic to test whether they are significantly different. We do the same tests for CARs.

3.4.1.2 Rival Firms

Because most acquirers are relatively large full-line insurers, the announcement of their merger with other firms influences rival firms, thus violating the basic assumption of independent and identical distributions. Similar to Octchere and Chan (2003) and Chen, Li and Moshirian (2005), we employ SUR (seemingly unrelated regression) to measure the share price reaction of the rival insurers on the acquirer's merger announcement. We use SUR model because the assumptions of independent and identically distributed residuals are violated when all insurance companies are affected by the merger event and clustered as part of one group.

$$DR_{it} = \alpha_i + \beta_{i1}MKT_t + \beta_{i2}MKT_{t-1} + \beta_{i3}MKT_{t+1} + \tau_i INT_i^U + \lambda_i DUM_t + e_{it} \qquad (3.3)$$

DR_{it} is the daily stock return of rival insurer i on day t.

MKT_t is day t's market return.

INT_i^U is orthogonalised interest rate return versus market return.

DUM_t equals one for event period and otherwise zero.

Eq(3.3) includes control and event variables, and parameters that are used to capture the rival insurers reaction to the merger announcements. The control variables encompass two factors, MKT and INT^U, and are represented by $\alpha_i + \beta_{i1}MKT_t + \beta_{i2}MKT_{t-1} + \beta_{i3}MKT_{t+1} + \tau_i INT_i^U$. The first variable MKT_t is used to control for general stock market movements and its lag and lead variables are also included in order to correct for non-synchronous trading, especially for those small insurers. The market returns are the insurance company's listed exchange market index returns. Following the study of Otchere and Chan (2003), the interest rate is also included as the second control variable. The daily interest rate change is defined as $INT_t = \ln(CASH_t / CASH_{t-1})$, where $CASH_t$ is day t's cash rate. Orthogonalization is

used to solve the multicollinearity problem between INT_t and MKT_t. The residual of the regression, INT_i^U is used in Eq.(3.3).

The daily abnormal stock return of insurance companies i over the event period, λ_i, is an estimate of λ_i. The event parameter, λ_i, captures the rival insurers reaction (abnormal returns) to the merger announcement. The coefficient is expected to be less than zero if the merger announcement has negative effects on rival insurers' future profitability. On the other hand, the coefficient is expected to be greater than zero if investors perceive certain rival insurers are more likely to become the next takeover target upon the merger announcement. Eq. (3.3) follows Otchere and Chan (2003).

We also construct equally-weighted portfolios of rival firms for each host country. The portfolios consist of individual rival firms listed in the same host country. For each country, the same portfolio is used for all the announcement events. Using equation (3.3), we obtain ARs of a portfolio of rival firms with OLS estimates based on a market index model.

We use five event windows: (0, +1), (-1, 0), (0, 2) and (-2, 0). We run the regressions from 250 days before the announcement to the latest event period. Because longer windows are noisier and present difficulties in finding significant results, we only consider shorter event windows here.

For each event window, the SURs (Seemingly Unrelated Regressions) produce 1004 ARs (abnormal returns) of individual rival firms, and the OLS regressions produce 154 portfolio ARs. With the obtained ARs, we then analyse whether the rival firms react negatively or positively to merger announcements. We test whether the percentage of positive abnormal returns is statistically significant, using t-test. We also test whether the mean of ARs is significantly different from zero.

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3.4.2 Risk Effects

We use total risk and systematic risk changes to measure the bidder's change in risk profile, similar to Amihud et al. (2002).

We calculate the stock return variance and index return variance; the ratio of the two measures total risk change. We use home and world finance indices respectively in the computation. For firm j and index k, the ratio can be written as

$$Ratio_{\sigma^2(j,k)} = \frac{\sigma^2_{R_J}}{\sigma^2_{RI_k}} \qquad (3.4)$$

We calculate the ratios for the pre-merger window over the period (-260, -10) and the post-merger window (+10, +260) separately, where date 0 is the completion date for the merger, identified as the effective date in the Worldwide Mergers & Acquisitions database. Finally we calculate the difference between these two ratios as the change of total risk.

$$\Delta Ratio_{\sigma^2(j,k)} = Ratio_{\sigma^2(j,k)}(+10,+260) - Ratio_{\sigma^2(j,k)}(-260,-10) \qquad (3.5)$$

The second measure of risk is systematic risk, quantified by the firm's beta relative to the home finance index and the world finance index. $Beta_{j,k}$ for firm j and index k is estimated from equation (3.1). As for change in total risk, pre-merger risk is evaluated over the (-260, -10) window and post-merger risk over the (+10, +260) window surrounding deal completion. We use the difference between the two betas to measure systematic risk change.

$$\Delta Beta_{j,k} = Beta_{j,k}(+10,+260) - Beta_{j,k}(-260,-10) \qquad (3.6)$$

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3.4.3 Determinants of Wealth and Risk Effects

There are several likely sources of wealth and risk changes associated with an acquisition. Analyses of US domestic acquisitions have highlighted the mode of payment (Travlos, 1987) existence and size of the toehold in target firms (Bulow et al., 1999) as well as the presence or absence of multiple bidders (Bradley et al., 1988) as possible explanations of the wealth effect on bidding firms. Cummins and Xie (2009) find that acquisitions with both business and geographic focus generate most value for property and liability insurers in the United States. While all acquirers, targets and divestiture insurers have significant positive abnormal returns, high cost or revenue efficient bidders create more wealth. Lai, McNamara and Yu (2008) find that operating performance after demutualization, as well as the demand of a stock IPO, drives stock abnormal returns of both life insurers and property-liability insurers. Moshirian, Ng and Wu (2009) report that stock abnormal returns significantly related to analyst recommendations in emerging countries. The variations in authority traditions and shareholder rights across countries affect investor behaviours which are reflected in share prices. LLSV (1998) explore investor legal protections and their enforcements across 49 countries. Kaufmann et al. (1999a, 1999b, 2002), and Kaufmann et al. (2004, 2005, 2006a, 2006b, 2007b and 2008) document a series of estimates of governance across countries. This chapter attempts to use governance variables to explain the wealth and risk effects arising from insurance firm acquisitions.

Macroeconomic conditions are generally ignored as they are considered to equally influence all transactions; they may also be too wide-ranging to have a significant influence on a specific acquirer's value. In cross-border acquisitions, this may no longer be so. Chen et al. (2009) find that both firm level (risk, size, cost and revenue) and country level variables (industry size, level of deregulation, inflation rate) are significant determinants of bancassurance. Moshirian and Wu (2009) find that macroeconomic indicators affect banking crisis probability differently. In the case of insurance, in particular, macroeconomic variables can have a significant role in determining the bidder's risk profile. Our study pays special attention to these

macroeconomic variables. We include other deal-specific and firm-specific variables to evaluate the relative importance of each type of factors in regression analysis. As in similar acquisitions studies (Amihud et al., 2000), we do not insist on the specific characteristics of financial firms. A summary description of variables is provided in Appendix B.

Governance Factors

Ye et al. (2009) report that socio-economic, market structure and governance factors determine the life insurance market's foreign participation in OECD countries. Shareholder rights give shareholder the power to vote for those directors who run the company profitably and pay out dividend. How well shareholder rights are protected in the target firm's host country can be one of the determining factors in the wealth effect and risk effect in a cross-border acquisition. The better shareholders are protected in the host country of the target, the better returns and fewer risks are expected in an acquisition. We use a measure of Anti-director Rights index designed by LLSV (1998) and extended in Pagano and Volpin (2005) for shareholder protection, it is "the sum of six dummy variables, indicating if proxy by mail is allowed, shares are not blocked before a shareholder meeting, cumulative voting for directors is allowed, oppressed minorities are protected, the percentage of share capital required to call an extraordinary shareholder meetings is less than 10 percent, and existing shareholders have pre-emptive rights at new equity offerings." (See paragraph 1 of page 33). This variable is denoted as ADRI in our study.

Investors' rights are protected by laws and financial contracts. Some measures of firms' income and assets are referred to in financial contracts. Income and assets are items in a company's financial reports. The quality of a country's accounting standard determines how reliable the financial reports are. Investors are more confident in regard to an acquisition where the target firm is hosted in a country with high accounting standards. The acquirer is expected to be exposed to higher risk when it takes over a firm in a country with a lower accounting standard. Quality accounting and auditing practices ensure investors have access to information promptly, frequently

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and transparently. We expect a high quality accounting standard to be positively related to wealth creation for an acquisition and negatively related to risks. LLSV 1998 examines company reports and constructs private indices for different countries. The index was published in 1991 and it is available for 44 countries. Because our sample deals are announced between 1994 and 2007, and not all the countries in our sample are covered by the index constructed in LLSV 1998, we use variable SAAS as an accounting quality proxy in our study. SAAS is the Strength of Auditing and Accounting Standards Index published in The Global Competitiveness Report 2008-2009 by the World Economic Forum.

Mandatory dividend (MDO) mandates companies to pay shareholder dividends sourced from a certain portion of the reported earnings. It serves as a substitute for minority shareholders' legal protection. We expect MDO to relate to risk change negatively. We use the mandatory dividends measures documented in LLSV (1998).

Investors are more confident in being shareholders of a bidder firm when it purchases another firm located in a country where decision making is closely monitored by investors and boards. We use a variable called corporate governance (CORPGOV) published in the Global Competitiveness Report 2008-2009 by the World Economic Forum. We expect CORPGOV to have a negative effect on risk change.

Kaufmann et al. (2008) argue that enterprises base their investment decisions on their perceived view of the investment climate and government performance. Of the six dimensions of the World Governance Index (WGI) documented in Kaufmann et al. (2008), we expect five to be related to change of risk. They are Voice and Accountability (VA), Political Stability and Absence of Violence (PV), Government Effectiveness (GE), Rule of Law (RL) and Control of Corruption (CC). We use the country rankings of the years for target countries as variables in our regression analysis and we expect that they will be positively related to change of risk, because the better the perception, the smaller the ranking figure.

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Transaction-Specific Factors

Big organisation managements are perceived to expand the business by acquiring other firms regardless of shareholder benefits. They are more likely to pay too much for the target. To measure the effect, we take the log of the bidder's firm size as a variable denoted BIDDERSIZE.

We expect a foreign deal to create more synergy while a domestic deal is expected to save incorporating cost. We use the dummy variable (XBORDER) to capture this effect.

We analyse the influence of business diversification on the acquirer's wealth and risk changes. The dummy variable DIVERSIF identifies whether the acquirer and the target are in different lines of business by referring to their 6-digit NAIC codes obtained from Thomson Financial Securities Data. In general, diversification is considered to negatively affect firm performance and destroy shareholder value (Servaes, 1996; Lamont and Polk, 2002). However, economies of scope are evident among insurers (Berger et al. 2000). In particular, large insurers seem capable of increasing their profits by combining property-liability products with life and health products. We therefore anticipate a higher wealth effect when the target's business allows the acquirer to extend its own business into adjacent products and markets. Likewise, a reduction in risk is expected to follow when the acquisition involves a business diversification.

We expect the bidder firm to be less likely to overpay for the target and to be exposed to less risk in a friendly merger. We use the dummy variable (ATTITUDE) to differentiate the nature of the deal. A friendly deal is denoted as 0 and a deal other than friendly is denoted as 1 for the variable.

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The means of payment employed in a transaction is documented to have distinct wealth effects for the bidder. When the offer is in cash, the reaction is generally positive, whereas when the payment is in shares the reaction is generally negative (Asquith et al., 1983; Travlos, 1987; Huang and Walkling, 1987). The economic rationale for the opposite share price reaction is that cash payments reduce the agency cost of free cash flows (Jensen, 1986). Additionally, payment in shares may signal that the acquirer's shares are overvalued (Myers and Majluf, 1986). For the same reason, we can expect the dummy variable CASHONLY representing a cash transaction to have a positive wealth effect, as is the case in US domestic acquisitions. If the transaction is paid fully in cash, the dummy variable CASHONLY is denoted by 1, otherwise 0.

It is argued that a firm which makes multiple acquisitions is a result of management's empire building activity. A serial bidder is expected to be exposed to more risk and tends to overpay for its targets. In contrast, it is also argued that serial bidders are able to create synergy better than those firms which only make one deal or a few deals. We use the dummy variable (SERIALBIDDER) in our regression. We use all the 1061 deals to calculate the average number of acquisitions, and the number is 4.55. For those bidders who make more acquisitions than the average number of bids for all bidders during the observation period, dummy equals one. Otherwise, dummy equals zero.

Besides economic factors, geographic proximity between the host and home nations may be instrumental in determining the success of the merger, and thus the wealth and risk effects at the time of its announcement. Sharing the same language and social customs can obviously facilitate the integration of the two firms and is likely to produce a favourable outcome. Anderson and Gatignon (1986) argue that a common language can potentially cause less transaction cost due to the relative ease of communication. Hence, a positive wealth effect and a negative risk effect are expected around the announcement date. We use DISTANCE as proximity of geographic difference between bidder and target for cross-border deals. The DISTANCE variable

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is the actual distance between the capital cities of home and host countries. The geographic proximity may provide a distinct advantage to the merger's success, thus reducing the acquirer's risk profile and possibly generating a positive wealth effect.

Macroeconomic Factors

One major reason for a company to expand overseas is if its domestic market gets close to saturation. Foreign acquisitions serve to sustain the firm's sales growth in new geographic areas, which are supposed to offer more promising opportunities if they are characterised by a strong growth rate. Focarelli and Pozzolo (2001) argue that growth in the host market is a key factor in bank foreign investments. Applying the same line of reasoning to the insurance sector, we may expect investors to react positively to the firm's expansion into high growth markets. However, acquisitions in growth markets also present higher risks and should therefore increase the risk profile of acquirers. As in Kiymaz (2004) we use ECO to represent above average GDP growth of the study period experienced by the host (target) country in the year before announcement. For domestic deals, both the acquirer and targets are based in the same country. Acquisition activities are viewed as more risky in a high growth country than in the most developed countries, and a higher rate of return is expected in faster growth countries. Therefore investors in higher growth countries may react less favourably to an acquisition announcement than investors in the most developed countries. As well, we expect the economy's growth rate to relate negatively to mergers' wealth effect for domestic acquisitions.

Foreign acquisitions also provide diversification benefits, which are all the more valuable when the business cycles in the home and host countries are not well synchronised. Amihud and Lev (1981) argue that conglomerate mergers have been driven by managers' efforts to reduce firm risk as a way of protecting their own human capital investment in the firm. We define GDPCOR as the correlation in GDP growth rates between the home and host countries in the 10-year period prior to the acquisition and expect this variable to be negatively associated with the acquirer's wealth change and positively associated with the acquirer's risk change.

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A counteracting argument to the opportunities presented by high growth countries is the high inflation rate they often present. Higher inflation makes the host country's currency rate lower and the projected cash flow value of the target firm also lower. In addition, higher inflation rates may weakly reflect unstable economic conditions. RELINF is the pre-event 5-year average of inflation rate differences between host and home nations. We expect the variable to reduce the wealth effect for the acquiring firm. By contrast, its consequence regarding the relative risk of the acquirer is still unknown.

The strength of the acquirer's domestic currency clearly enhances the acquirer's financial position and contributes to lowering the acquisition cost. On the other hand, it may induce the acquirer to overpay for the target. Kiymaz and Mukherjee (2000) find that the target firms gain more wealth in that case. Additionally, a strong home currency suggests that future cash flows are likely to be lower once converted back to the acquirer's domestic currency. We use FXAPP to quantify the appreciation rate of the home currency against the host currency in the pre-event year and expect this variable to be negatively related with the acquirer's wealth change.

We also expect to find a negative association between the host currency's exchange rate volatility and the acquirer's wealth effect. As pointed out by Vasconcellos and Kish (1996), exchange rate volatility increases the uncertainty regarding the value of future cash flows produced by the target, and therefore decreases their value to the bidder's shareholders. Li et al (2009) document that US life and non-life insurers are both exposed to foreign exchange risk and their risk profiles are similar. We calculate FXVOL as the standard deviation of home and host countries' cross-currency daily exchange rates in the year before the event. Kiymaz (2004) introduces this variable to examine foreign acquisition effects in the United States and finds it has a significant negative effect on the acquirer's stock value.

3.5 Empirical Results

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3.5.1 Risk Effects

Table 3-2 shows the change in total risk with respect to the home and the world finance indices. For the entire sample, we find a significant decrease in total risk relative to both finance indices between 5% and 7%. This is mainly driven by the 6%-10% significant decrease in risk for domestic deals. For foreign transactions, total risk significantly decreases by 4% against the home finance index, however, total risk against the world market index rises significantly. The result indicates that insurance companies benefit from economy of scale, which leads to lower total risk after they merge. For cross-border deals, acquirers enjoy risk reduction benefits compared to other financial institutions in the same country. Accordingly, cross-border insurance acquisitions should not raise undue concerns from the buyer's as well as the target's regulatory authorities. M&A effects appear differently between insurance and banking industries. Amihud et al. (2002) find risks of bidder banks involved in foreign acquisitions do not change significantly and argue that bank regulators should not be concerned about insolvency implications. In comparison to all financial firms globally, foreign insurance bidders increase their total risks by operating in a different country. This is consistent with the perception that overseas expansion involves a higher level of risk.

Changes in systematic risk are presented in Table 3-3. As far as the entire sample of the domestic deals is concerned, the bidders experience a significant increase in systematic risk against the home finance index and the home market index. Consistent with Amihud et al (2002), systematic risk increases significantly against the home market index post cross-border merger. However, there is a weak indication that systematic risk decreases against the world finance index for the entire sample, driven by domestic deals. The proportion of firms increasing their systematic risk relative to the world finance index (43.4%) is significantly low for domestic deals and the entire sample, but not for cross-border deals. The result is consistent with the change of exposure arising from an acquisition. One would expect an increase in systematic risk due to the fact that the acquirer has greater exposure to the market and the industry after merging with another company.

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Table 3-2: Change in total risk relative to home and world finance indexes

Change in total risk is measured by the change in the acquirer's variance of daily stock returns relative to the variance of the home and world finance indexes.

Official completion of the acquisition is used as date zero. Variance before is measured over the period -260 days to -10 days of completion and variance after is measured over the period +10 days to +260 days following completion.

Change in total risk

	Change in total risk (world finance index)			Change in total risk (home finance index)			Change in total risk (world market index)			Change in total risk (home market index)		
	Mean	Median	% positive	Mean	Median	% positive	Mean	Median	% positive	Mean	Median	% positive
	t-statistics		t-statistics	t-statistics		t-statistics	t-statistics		t-statistics	t-statistics		t-statistics
Entire sample (212)	-0.6160	-0.1612	44.34	-0.5450	-0.3866	36.79	0.3917	0.4833	53.77	0.1098	0.1728	54.25
	-2.17**		-1.66*	-3.78**		-3.98**	1.23		1.10	0.64		1.24
Domestic deals (135)	-0.9730	-0.3090	42.22	-0.6220	-0.4871	37.04	0.0570	0.1409	51.11	0.1333	0.1098	52.59
	-2.48**		-1.82*	-3.09**		-3.11**	0.13		0.26	0.59		0.60
Foreign deals (76)	0.0119	-0.0104	48.05	-0.4080	-0.2508	36.36	0.9808	1.1449	58.44	0.0685	0.3315	58.44
	0.03		-0.34	-2.23**		-2.47**	2.24**		1.49	0.27		1.49

***, **, * indicates significance at 1%, 5% and 10% level

Table 3-3: Change in systematic risk relative to home and world finance indexes

Change in systematic risk is measured by the change in the acquirer's betas following the completion of the acquisition. A two factor model of stock returns is used:
$R_{j,t} = \alpha_j + \beta_{world,j}RI_{world,t} + \beta_{home,j}RI^*_{home,t} + e_{j,t}$ in which $R_{j,t}$ is the return of firm j on day t, $RI_{world,t}$ is the return on the world index and $RI^*_{home,t}$ the return on the component of the home index uncorrelated with the world index. Estimation is measured over the period -260 days to -10 days before completion of the acquisition and over the period +10 days to +260 days after completion.

Change in systematic risk

	Δβ (world finance index)			Δβ (home finance index)			Δβ (world market index)			Δβ (home market index)		
	Mean	Median	% positive	Mean	Median	% positive	Mean	Median	% positive	Mean	Median	% positive
	t-statistics		t-statistics	t-statistics		t-statistics	t-statistics		t-statistics	t-statistics		t-statistics
Entire sample (212)	-0.0002	-0.0212	43.40	0.0492	-0.0202	48.58	0.0309	0.0191	54.25	0.1198	0.1033	61.79
	-0.01		-1.94*	2.26**		-0.41	1.53		1.24	4.44**		3.53**
Domestic deals (135)	-0.0030	-0.0410	42.22	0.0498	-0.0201	48.15	0.0231	0.0055	51.85	0.1238	0.1035	62.96
	-0.11		-1.82*	1.72*		-0.43	0.93		0.43	3.76**		3.11**
Foreign deals (76)	0.0046	-0.0055	45.45	0.0480	-0.0203	49.35	0.0446	0.0511	58.44	0.1128	0.0997	59.74
	0.16		-0.80	1.5		-0.11	1.28		1.49	2.40**		1.73*

***, **, * indicates significance at 1%, 5% and 10% level

3.5.2 Wealth Effects

We initially found 1061 deals which satisfied the conditions described in the Data section of the chapter. 116 target firms of the 1061 deals were publicly listed. After all the available stock price and economy information was downloaded from Datastream, there were 211 deals in our sample with acquirer stock price information, and only 21 target firms were publicly listed out of the 211 targets. All 211 deals are included in our study on acquirers and the sub-sample of 21 deals with target stock price information is used for target price reaction study.

Wealth effects for acquiring firms are reported in Table 3-4. Panel A shows the daily average abnormal returns (AARs), the AARs weighted by the inverse of sample return standard deviation and the standardised Z-Score in the (-10, 10) event window.

Furthermore, we report the number of positive ARs against the number of negative ARs, and the t-statistics results showing whether the number of positive ARs is significantly more than the negative. The AARs and Weighted AARs are computed for the entire sample and sub-sample by deal nature. The main indication is that AARs and Weighted AARs around the event are significantly positive for the entire sample and for domestic deals, while there are no significant wealth effects for cross-border deals.

Panel B presents the cumulative abnormal returns for some typical event-study windows. For the entire sample, CARs for all the typical periods appear to be significantly positive. All of the weighted CARs are positive, and the Z-Scores are significant for event windows (-10, 2), (-2, 0) and (-2, 2). Akhigbe and Madura (2001) report that rival insurance firms experience positive and significant ARs using a market model. It can be argued that investors perceive that a merger of insurance firms is a synergy creation activity, mainly for domestic deals. Chen, Li and Moshirian (2005) report that HSBC has no significant response to the Bank of China Hong Kong's partial privatisation, while some other financial institutions react negatively to

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Table 3-4: Wealth effect (against world finance index and home finance index)

Panel A:Average abnormal return over -10 to +10 days surrounding the announcement

	AAR (%)	t-statistics	weighted AAR (%)	Standadized Z-Score	+ Vs -	t-statistics
			Entire sample			
Day -10	0.10	0.98	0.08	1.10	97:114	-1.17
Day -9	0.00	0.01	0.01	0.06	88:123	-2.44**
Day -8	0.27	2.64**	0.19	1.79*	123:88	2.44**
Day -7	0.02	0.20	0.07	0.83	111:100	0.76
Day -6	0.17	1.64	0.11	1.23	102:109	-0.48
Day -5	-0.15	-1.48	-0.10	-1.25	92:119	-1.87*
Day -4	0.11	1.12	0.09	1.03	117:94	1.59
Day -3	-0.27	-2.67**	-0.22	-1.63	91:120	-2.01**
Day -2	0.12	1.16	0.12	1.31	100:111	-0.76
Day -1	0.19	1.93*	0.13	1.35	112:99	0.89
Day 0	0.04	0.35	0.05	0.41	106:105	0.07
Day 1	0.05	0.48	0.06	0.53	91:120	-2.01**
Day 2	0.20	2.00**	0.08	0.82	110:101	0.62
Day 3	0.04	0.45	0.05	0.49	110:101	0.62
Day 4	0.08	0.79	0.10	1.23	111:100	0.76
Day 5	0.03	0.27	0.01	0.15	100:111	-0.76
Day 6	0.11	1.06	0.05	0.61	105:106	-0.07
Day 7	-0.25	-2.52**	-0.24	-2.16**	93:118	-1.73*
Day 8	0.02	0.20	0.04	0.42	99:112	-0.89
Day 9	0.12	1.24	0.10	1.19	108:103	0.34
Day 10	-0.01	-0.08	-0.04	-0.43	101:110	-0.62
			Domestic Deals			
Day -10	0.07	0.51	0.07	0.77	58:77	-1.65
Day -9	0.02	0.13	0.00	0.00	59:76	-1.47
Day -8	0.43	3.24**	0.33	2.3**	82:53	2.55**
Day -7	-0.05	-0.39	0.00	0.02	70:65	0.43
Day -6	0.22	1.62	0.16	1.41	67:68	-0.09
Day -5	-0.16	-1.19	-0.04	-0.40	65:70	-0.43
Day -4	0.17	1.26	0.11	1.12	71:64	0.60
Day -3	-0.29	-2.19**	-0.22	-1.09	62:73	-0.95
Day -2	0.22	1.66*	0.23	1.66*	68:67	0.09
Day -1	0.32	2.38**	0.17	1.23	75:60	1.29
Day 0	0.01	0.05	0.05	0.31	65:70	-0.43
Day 1	0.11	0.82	0.11	0.68	53:82	-2.55**
Day 2	0.41	3.09**	0.20	1.42	68:67	0.09
Day 3	0.05	0.35	0.04	0.29	74:61	1.12
Day 4	0.06	0.42	0.11	0.92	64:71	-0.60
Day 5	0.07	0.52	0.07	0.61	71:64	0.60
Day 6	0.03	0.24	-0.04	-0.36	69:66	0.26
Day 7	-0.33	-2.47**	-0.33	-2.39**	54:81	-2.36**
Day 8	-0.19	-1.39	-0.13	-1.03	59:76	-1.47
Day 9	-0.01	-0.05	-0.01	-0.09	60:75	-1.29
Day 10	0.02	0.14	-0.03	-0.23	68:67	0.09
			Foreign Deals			
Day -10	0.15	1.00	0.09	0.82	39:37	0.23
Day -9	-0.03	-0.18	0.01	0.11	29:47	-2.11**
Day -8	-0.03	-0.18	-0.05	-0.36	41:35	0.69
Day -7	0.15	0.98	0.19	1.64	41:35	0.69
Day -6	0.08	0.52	0.04	0.24	35:41	-0.69
Day -5	-0.13	-0.89	-0.19	-1.69*	27:49	-2.62**
Day -4	0.02	0.11	0.04	0.28	46:30	1.87*
Day -3	-0.23	-1.53	-0.22	-1.63	29:47	-2.11**
Day -2	-0.06	-0.37	-0.05	-0.49	32:44	-1.38
Day -1	-0.01	-0.07	0.07	0.55	37:39	-0.23
Day 0	0.08	0.57	0.04	0.29	41:35	0.69
Day 1	-0.06	-0.39	-0.02	-0.14	38:38	0.00
Day 2	-0.16	-1.08	-0.11	-0.77	42:34	0.92
Day 3	0.04	0.28	0.06	0.47	36:40	-0.46
Day 4	0.12	0.82	0.09	0.87	47:29	2.11**
Day 5	-0.05	-0.31	-0.09	-0.79	29:47	-2.11**
Day 6	0.24	1.58	0.21	1.73*	36:40	-0.46
Day 7	-0.12	-0.81	-0.08	-0.44	39:37	0.23
Day 8	0.37	2.49**	0.32	2.56**	40:36	0.46
Day 9	0.34	2.30**	0.29	2.72**	48:28	2.36**
Day 10	-0.06	-0.37	-0.06	-0.40	33:43	-1.15

Panel B: Cumulative abnormal return surrounding the announcement date

	CAR (%)	t-statistics	weighted CAR (%)	Standadized Z-Score	+ Vs -	t-statistics
			Entire sample			
Day -10 to 2	0.84	2.31**	0.12	1.70*	121:90	2.15**
Day -1 to 1	0.32	1.84*	0.28	1.59	116:95	1.45
Day -1 to 2	0.54	2.65**	0.20	1.38	110:101	0.62
Day -1 to 3	0.58	2.55**	0.17	1.41	120:91	2.01**
Day -2 to 0	0.45	2.55**	0.32	1.84*	115:96	1.31
Day -2 to 2	0.70	3.10**	0.25	1.85*	114:97	1.17
			Domestic Deals			
Day -10 to 2	1.43	2.98**	0.23	2.28**	79:56	2.00**
Day -1 to 1	0.50	2.15**	0.40	1.53	74:61	1.12
Day -1 to 2	0.92	3.46**	0.32	1.53	75:60	1.29
Day -1 to 3	0.96	3.22**	0.25	1.39	82:53	2.55**
Day -2 to 0	0.69	2.99**	0.49	1.93*	79:56	2.00**
Day -2 to 2	1.20	4.02**	0.41	2.09**	80:55	2.18**
			Foreign Deals			
Day -10 to 2	-0.22	-0.40	-0.05	-0.59	42:34	0.92
Day -1 to 1	0.01	0.04	0.10	0.49	42:34	0.92
Day -1 to 2	-0.16	-0.52	0.01	0.07	35:41	-0.69
Day -1 to 3	-0.11	-0.32	0.06	0.39	38:38	0.00
Day -2 to 0	0.01	0.05	0.06	0.29	36:40	-0.46
Day -2 to 2	-0.19	-0.56	0.01	0.04	34:42	-0.92

Panel C: Cumulative abnormal return two years after the acquisition becomes effective

	Entire sample		Domestic deals		Foreign deals	
	CAR (%)	t-statistics	CAR (%)	t-statistics	CAR (%)	t-statistics
Day +11 to +135	-2.84	-2.48**	-5.15	-3.39**	1.21	0.71
Day +11 to +260	-5.85	-3.64**	-7.16	-3.36**	-3.54	-1.49
Day +11 to +510	-14.62	-6.61**	-18.12	-6.15**	-8.47	-2.63**

Abnormal returns are measured using a two-factor model: $R_{j,t} = \alpha_j + \beta_{world,j} RI_{world,t} + \beta_{home,j} RI^*_{home,t} + e_{j,t}$ in which $R_{j,t}$ is the return of acquirer j on day t, $RI_{world,t}$ is the return on the world index and $RI^*_{home,t}$ the return on the component of the home index uncorrelated with the world index. Coefficients are estimated over the period -260 days to -11 days prior to the announcement. Panel A, B and C used equation (3.1) to estimate abnormal returns. Panel B1 used equation (1a), (1b) and (1c) as robustness tests.

*, ** represent 10 percent and 5 percent significant levels, respectively.

the event. Servaes and Tamayo (2009) report that industry peers increase their financial health and reporting quality to avoid being the next hostile takeover target.

With cross-border deals, there are no significant wealth results during the observation windows. The benefits of cross-border acquisitions brought by increased diversification may be offset by higher monitoring and regulatory costs. Amihud et al. (2002) find significant negative, but economically negligible, CARs of -0.9 % over the window (-1, 0) for cross-border bank mergers.

The bidders' long term wealth effects are reported in Panel C of Table 3-4. We find significant negative CARs for domestic transactions six months post-event, while no significant CARs are found for cross-border deals. We find significant negative wealth effects for the entire sample and both sub-samples two years after the event.

Table 3-5 reports the target firms' price reaction around the announcement dates. Target firms experience significant CARs for both the entire sample and domestic deals, while no significant CARs are found for foreign deals. Together with the similar results for acquirer firms, one can argue that investors regard a merger between two insurers as a synergy creation activity; however they also think the benefits created by the merger are offset by higher monitoring and regulatory costs for cross-border deals.

Table 3-5: Wealth effect of 21 targets (against world finance index and home finance index)
Panel A: Average abnormal return over -10 days to +10 days surrounding the announcement date

	Entire sample		Domestic deals		Foreign deals	
	AAR (%)	t-statistics	AAR (%)	t-statistics	AAR (%)	t-statistics
Day -10	0.10	0.98	0.07	0.51	-0.03	-0.18
Day -9	0.00	0.01	0.02	0.13	-0.03	-0.18
Day -8	0.27	2.64**	0.43	3.24**	0.15	0.98
Day -7	0.02	0.20	-0.05	-0.39	0.08	0.52
Day -6	0.17	1.64	0.22	1.62	-0.13	-0.89
Day -5	-0.15	-1.48	-0.16	-1.19	0.02	0.11
Day -4	0.11	1.12	0.17	1.26	-0.23	-1.53
Day -3	-0.27	-2.67**	-0.29	-2.19**	-0.06	-0.37
Day -2	0.12	1.16	0.22	1.66*	-0.01	-0.07
Day -1	0.19	1.93*	0.32	2.38**	0.08	0.57
Day 0	0.04	0.35	0.01	0.05	-0.06	-0.39
Day 1	0.05	0.48	0.11	0.82	-0.16	-1.08
Day 2	0.20	2.00**	0.41	3.09**	0.04	0.28
Day 3	0.04	0.45	0.05	0.35	0.12	0.82
Day 4	0.08	0.79	0.06	0.42	-0.05	-0.31
Day 5	0.03	0.27	0.07	0.52	0.24	1.58
Day 6	0.11	1.06	0.03	0.24	-0.12	-0.81
Day 7	-0.25	-2.52**	-0.33	-2.47**	0.37	2.49**
Day 8	0.02	0.20	-0.19	-1.39	0.34	2.30**
Day 9	0.12	1.24	-0.01	-0.05	-0.06	-0.37
Day 10	-0.01	-0.08	0.02	0.14	0.00	0.00

Panel B: Cumulative abnormal return surrounding the announcement date

	Entire sample		Domestic deals		Foreign deals	
	CAR (%)	t-statistics	CAR (%)	t-statistics	CAR (%)	t-statistics
Day -10 to 2	0.84	2.31**	1.43	2.98**	-0.22	-0.40
Day -1 to 1	0.32	1.84*	0.50	2.15**	0.01	0.04
Day -1 to 2	0.54	2.65**	0.92	3.46**	-0.16	-0.52
Day -1 to 3	0.58	2.55**	0.96	3.22**	-0.11	-0.32

The results of rival firm wealth effects are reported in Panel A of Table 3-5. For all the transactions, most of the t-statistics are negative and none of them is significant. For domestic deals, the results are mixed for individual rival firms' ARs. Slightly less than 50% of the individual rival insurers react positively to the event, and the means of ARs are all positive but insignificant. During event window (-1, 0), 58.1% of rival firm portfolios react positively to a merger announcement and the t-statistic is significant at the 10% level. There is a weak indication that rival firms react positively to domestic transactions. For cross-border deals, all the t-statistics are negative during event window (-2, 0), 44.98% of individual rival firms react negatively to merger announcements and the t-statistic is significant at the 10% level. The mean of ARs is significantly negative at the 5% level for individual firms and at the 10% level for rival firm portfolios. In summary, rival insurance companies react positively to domestic transactions and significantly negatively to cross-border transactions.

We then test whether the two sub-samples are different in wealth effects. The results are reported in Panel B of Table 3-6. The t-test results for individual rival firms show the percentage of positive domestic deals is significantly more than that of cross-border deals at the 5% level in event window (0, 2). For portfolios of rival firms, the means of ARs of domestic deals are significantly larger than those of cross-border deals at the 10% level in three event windows. The results confirm that rival insurancefirms react differently to domestic and cross-border merger announcements. A possible explanation is that cross-border deal acquirers are normally well-established multinational companies, and when those acquirers enter or expand in the host country's insurance market, investors are more likely to think other insurers will suffer from loss of revenue and profit facing stronger competitors.

3.5.3 Determinants of Risk Change

The most significant change in acquirer's risk after acquisition is the total risk against the home finance index. We next measure the determinants of the risk, controlling for all macroeconomic factors, governance factors and transaction variables. Regression

Table 3-6: Analysis of ARs (Abnormal Returns) for rival insurance companies around merger announcement

Observation Windows	Individual rival insurance companies					Portfolios of rival insurance companies				
	(0,1)	(-1,0)	(-1,1)	(0,2)	(-2,0)	(0,1)	(-1,0)	(-1,1)	(0,2)	(-2,0)
Panel A: ARs (Abnormal Returns) statistics										
All Deals (154)										
Number of all ARs	1004	1004	1004	1004	1004	154	154	154	154	154
% Positive ARs	48.51%	49.50%	48.21%	48.31%	47.71%	49.35%	53.25%	49.35%	50.00%	49.35%
t statistics	*-0.95*	*-0.32*	*-1.14*	*-1.07*	*-1.45*	*-0.16*	*0.80*	*-0.16*	*0.00*	*-0.16*
mean of ARs	0.0000	0.0000	0.0001	-0.0003	-0.0001	0.0000	0.0001	0.0001	-0.0003	0.0000
t statistics	*-0.10*	*0.02*	*0.26*	*-0.89*	*-0.16*	*-0.10*	*0.25*	*0.17*	*-0.78*	*0.09*
Domestic Deals (105)										
Number of all ARs	289	289	289	289	289	49	49	49	49	49
% Positive ARs	48.67%	49.79%	48.67%	49.65%	47.69%	50.48%	58.10%	50.48%	51.43%	52.38%
t statistics	*-0.71*	*-0.11*	*-0.71*	*-0.19*	*-1.23*	*0.10*	*1.67**	*0.10*	*0.29*	*0.49*
mean of ARs	0.0002	0.0004	0.0003	0.0001	0.0001	0.0003	0.0007	0.0005	0.0002	0.0004
t statistics	*0.52*	*0.95*	*0.97*	*0.39*	*0.22*	*0.69*	*1.52*	*1.29*	*0.39*	*0.84*
Cross-border Deals (49)										
Number of all ARs	715	715	715	715	715	105	105	105	105	105
% Positive ARs	48.10%	48.79%	47.06%	44.98%	47.75%	46.94%	42.86%	46.94%	46.94%	42.86%
t statistics	*-0.65*	*-0.41*	*-1.00*	*-1.71**	*-0.76*	*-0.42*	*-1.00*	*-0.42*	*-0.42*	*-1.00*
mean of ARs	-0.0007	-0.0009	-0.0005	-0.0010	-0.0004	-0.0008	-0.0010	-0.0008	-0.0010	-0.0007
t statistics	*-1.04*	*-1.05*	*-0.84*	*-2.29***	*-0.57*	*-1.15*	*-1.09*	*-1.00*	*-1.71**	*-0.86*
Panel B: t-test:difference between domestic and cross-border deals										
% Positive ARs	0.09%	0.13%	0.08%	0.13%	0.04%	3.54%	15.24%	3.54%	4.49%	9.52%
t statistics	*1.15*	*1.54*	*1.29*	*2.14***	*0.65*	*0.41*	*1.77**	*0.41*	*0.52*	*1.10*
mean of ARs	0.0057	0.0100	0.0161	0.0467	-0.0006	0.0011	0.0019	0.0013	0.0014	0.0010
t statistics	*0.16*	*0.29*	*0.46*	*1.34*	*-0.02*	*1.35*	*1.88**	*1.67**	*1.80**	*1.25*

Statistics of abnormal returns of individual and portfolios of rival firms for merger announcement days are given in this table respectively. The rival firms are the insurance companies listed on stock exchanges of acquirer's home countries. For individual rival firm reaction analysis, Seeminly Unrelated Regression estimates of abnormal returns are obtained on a single market index model given by equation (3.6). For portfolio of rival firm reaction analysis, ordinary least square regression estimates of abnormal returns to the rival firms are obtained based on a single market index model given by the equation (3.6). Five different events periods are used for estimation: 0 to +1, -1 to 0, 0 to 2, and -2 to 0 relative to the press date of the merger announcements. The equations are estimated for the period t = -250 to the latest event period. t-test is run to test the mean difference of rival insurers ARs between domestic and cross-border deals, t-statistics are italicized and given below the individual t-statistics. *, ** represent 10% and 5% significant levels, respectively.

results appear in Table 3-7. The first observation is that variables generally have the predicted sign.

Strength of Auditing and Accounting Standard Index (SAAS), Anti-director Index (ADRI) and Mandatory Dividend Scores (MDO) are negatively related to acquirer risk change and the majority of them are statistically significant. For domestic deals, the country rankings of Control of Corruption (CC), Voice and Accountability (VA), Rule of Law (RL) and Political Stability and Absence of Violence (PS) are positively and significantly associated with bidder risk change. Only RL has a significant positive effect on risk change for cross-border deals. The results indicate that better governance provides stability and confidence for stock investors.

Acquirer's market value (BIDDERSIZE) is positively associated with change of total risk after merger, and the t-statistics are positively significant for cross-border deals in all three regression models. The empirical result shows that the bigger the acquirer in market capitalisation, the more its total risk is reduced compared to smaller firms after a cross-border acquisition. A possible explanation is that the management of larger firms is more capable of managing risks associated with cross-border acquisition. Serial acquirer dummy (SERIALBIDDER) coefficients have positive results, and the coefficients are significant for domestic deals and the entire sample. For cross-border deals, SERIALBIDDER is positively significant at the 10% level in model (4). The results support our expectation that multiple bidders are exposed to more risk during a series of acquisition activities because of increased uncertainty of cash flows. External growth into unrelated business lines (DIVERSIF) is negatively related to the acquirer's risk profile in an insignificant way.

Favourable economic conditions in the host country (ECO) are negatively associated with risk change for the acquiring firm of cross-border deals. We find FXVOL positive and significant at the 10 % level for foreign acquirers. The increase in cross- currency exchange rate volatility adds to the uncertainty of overseas income to the bidder and

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Table 3-7: Determinants of acquirer's risk change

Independent variable	Pred. Sign	All Deals			Domestic			Cross-border		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Constant		-2.8326	-1.7693	-0.9714	-0.0879	-16.0760	-15.4307	3.6297	3.7570	-4.3471
		-0.61	-0.50	-0.29	-0.35	-2.32**	-1.76*	0.75	0.78	-0.81
Governance variables										
SAAS	-	-1.6333	-1.7434	-1.7971	-0.1428	-7.5530	-4.2727	-1.8767	-1.7881	-2.0993
		-1.76*	-2.21**	-2.2**	-1.78*	-3.34**	-1.17	-1.88*	-1.87*	-1.63
ADRI	-	-0.3716	-0.4407	-0.4304	0.0014	-0.7030	0.1056	-0.7584	-0.7651	-0.6998
		-1.22	-1.79*	-1.73*	0.05	-0.78	0.07	-2.67**	-2.69**	-2.02**
MDO	-	-0.7505	-0.6020	-0.6077	-0.0292	-3.2730	-2.1921	-1.1376	-1.1076	-0.2314
		-1.34	-1.09	-1.10	-0.66	-1.67*	-0.78	-2.19**	-2.14**	-0.41
CORPGOV	-	0.9974	1.1243	1.2942	0.0335		-3.2069	1.0474	0.9578	2.5604
		0.99	1.35	1.43	0.40		-0.86	0.90	0.87	1.19
CC	+	0.0387	0.0289	0.0192	-0.0051		0.5158	-0.0698	-0.0675	-0.0567
		0.63	0.54	0.36	-1.47		2.46**	-1.37	-1.33	-1.09
VA	+	0.0319	0.0241	0.0276	0.0030	0.3815	0.2047	-0.0679	-0.0669	-0.0476
		0.79	0.64	0.71	1.32	4.46**	2.05**	-1.43	-1.40	-1.05
RL	+	-0.0372			0.0060	-0.0415	-0.2733	0.1377	0.1362	0.1808
		-0.61			1.96*	-0.29	-1.40	2.44**	2.39**	2.39**
GE	+	0.0321	0.0066	0.0021	0.0038	0.3311	0.1571	0.0219	0.0198	-0.0927
		0.48	0.11	0.04	0.88	1.48	0.86	0.43	0.38	-1.06
PS	+	0.0088	0.0061	0.0118	0.0010	0.0130	0.0173	-0.0014	-0.0023	-0.0083
		0.66	0.52	0.84	1.97*	0.84	1.04	-0.08	-0.13	-0.43
Transaction variables										
BIDDERSIZE	+	0.1407	0.0928			0.0986	0.1349	0.3498	0.3384	0.5697
		1.00	0.74			0.58	0.72	1.75*	1.65*	2.13**
ATTITUDE	+	-1.2243		-0.9972	-0.0039			-0.2487		-0.3495
		-1.27		-1.11	-0.31			-0.55		-0.56
SERIALBIDDER	+	0.9051	1.0123	1.0051	-0.0078	1.3151		-0.3731	-0.3354	0.2383
		1.68*	1.74*	1.74*	-0.91	1.83*		-0.35	-0.33	0.19
DIVERSIF	-	-0.3555				-0.1379	-0.3860		0.0206	
		-1.01				-0.37	-0.96		0.07	
Macroeconomic variables										
ECO	-	0.0020		-0.0111	-0.0275		-1.1481	-0.0446	-0.0420	-0.0592
		0.06		-0.42	-1.32		-1.29	-2.06**	-1.87*	-1.49
FXVOL	+									0.1350
										1.72*
GDPCOR	+									1.5135
										1.86*
FXAPP	+									1.5857
										0.42

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Observations	174	170	171	124	122	124	53	53	56
Adjusted R2	0.0371	0.0356	0.0390	0.1249	0.2052	0.1876	0.1454	0.1431	0.1675

The dependent variable is the acquirer's change in total risk relative to the home finance index around the merger completion. SAAS is the strength of auditing and accounting standards published in The Global Competitiveness Report 2008-2009. ADRI is the Anti-director Rights index designed by LLSV (1998) and extended by Pagano and Volpin (2005). MDO is mandatory dividends shown in LLSV (1998). CORPGOV is corporate governance score published in The Global Competitiveness Report 2008-2009. CC is Control of Corruption, VA is Voice and Accountability, RL is Rule of Law, GE is Government Effectiveness, and PS is Political Stability and Absence of Violence; the above five are shown in Kaufmann et al. (2008). BIDDERSIZE is the log of acquirer firm market capitalisation in USD. The dummy ATTITUDE specifies whether the deal is a friendly acquisition or not. SERIALBIDDER dummy differentiate whether the acquirer make multiple deals above average number of acquisitions all bidders made. DIVERSIF indicates that the target operates mostly in a different business line. ECO is measured by the host country's above-average growth rate in the year preceding the acquisition. Exchange rate volatility FXVOL is measured by the standard deviation of home and host countries' cross currency daily exchange rates in the year preceding the announcement. GDPCOR is the 10-year correlation of growth rates between the host and home countries. FXAPP is the appreciation rate of the home currency against the host currency in the year preceding the announcement. ***, **, * indicates significance at 1%, 5% and 10% level

raises the company's total risk. The coefficient for growth rate correlation (GDPCOR) is positive, suggesting that an acquirer's risk profile is lower when the acquisition happens in a foreign economy with low correlation to the domestic economy. Rate of currency depreciation (FXAPP) does not have any significant effect on an acquirer's risk-profile.

3.5.4 Determinants of Wealth Effects

Table 3-8 reports the cross-sectional regression results of wealth effects using the variables discussed in section 3.3. Three models are considered for the entire sample and domestic deals. Model 1 includes all macroeconomic, corporate governance and transaction-specific variables. Model 2 excludes the diversification variable. Model 3 does not account for the transparency variable. For cross-border deals, we introduce variables about the different macroeconomic conditions in the home and host countries as Model 4. We exclude GDPCOR and FXAPP in Model 5 because the two variables can be correlated with RELINF. The dependent variable is the wealth effect over the period (-1, +2) surrounding the deal's announcement. Explanatory variables generally have the sign predicted in the discussion contained in section 3.3.

For cross-border deals, the anti-director's right index (ADRI) positively relates to acquirers' wealth creation. For the size of the bidder, inconsistent results are reported between domestic deals and cross-border deals. Bidders' size is significantly negatively related to wealth creation in domestic deals while the sign of coefficient is positive, yet insignificant for cross-border deals. Investors can lack confidence in smaller firms making acquisitions and operating in a foreign country. However, for domestic deals and the entire sample, the results are consistent with the management empire building story. Kyimaz (2004) reports that smaller firms gain less than larger ones for US acquirers involved in cross-border mergers.

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For cross-border deals and the entire sample, the ATTITUDE dummy is negatively related to CARs. Non-friendly bidders tend to experience negative wealth effects in cross-border acquisitions. There are no significant effects for domestic deals.

Serial bidders who make five deals or more, generate negative wealth effects, and this is significant for both domestic deals and cross-border deals. The finding is not consistent with past research. Serial acquirers maintain positive gain till the fourth acquisition (Asquith et al.1983). Multiple bidders create value from private targets (Fuller et al. 2002).

The combination of different business lines within the insurance sector (DIVERSIF) has no significant wealth effect for the acquirer, which supports the idea that no economies of scope exist within the insurance industry. Beger et al (2000) study US insurance companies and document that neither conglomeration nor strategic focus dominates in the whole industry. Deals paid in cash (CASHONLY) generate the same returns as deals paid in shares or a combination of shares and cash. Tavlos (1987) reports that bidders' return relates negatively to share exchange deals. Kyimaz (2004) reports that a bidder gains less when it pays the target all in cash; the finding does not meet his initial expectation. Harris and Ravenscraft (1991) document positive effects of cash payment on US target firms' wealth effects. Huang and Walking (1987) find that in cash offers higher acquisition returns are generated than in stock offers. The distance (DISTANCE) between home and host countries does not make a statistically significant difference to bidders' wealth effects around an announcement.

Favourable economic conditions in the host country (ECO) are associated with positive and significant abnormal returns for the acquiring firm for the entire sample and for cross-border deals. Kiymaz (2004) finds a significant negative wealth effect for US acquirers of financial services firms located in countries experiencing above-average growth rates. Kiymaz's assumption is that negative abnormal returns are the result of acquirers overpaying for their targets. It is possible that acquirers have learned from

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their past experience, given our more recent sample, or that insurers are less likely to overpay for their targets compared to other financial services firms. Buch and DeLong (2002) also find that firms expanding into developing markets experience greater gains than those entering mature markets.

The volatility of the exchange rate in the year preceding the merger (FXVOL) is found to be negative and significant at the 10% level for cross-border acquirers. Targets' future cash flow uncertainty appears to represent a source of concern for cross-border acquirers' stockholders.

Synchronisation of business cycles in the home and host countries (GDPCOR) has little effect on the acquirers' value. This is consistent with Kiymaz (2004) who documents that correlations of US and target's country GNPs do not have significant impact on wealth gains. With a sample of US targets and bidders involved in cross-border mergers between 1981 and 1991, Kiymaz and Mukherjee (2000) report an inverse relationship between bidder CARs and economic co-movement of the US and the target's country.

As expected, relative inflation rates between the host and home countries (RELINF) have a significantly negative effect, whether exchange rate variables are included in or excluded from the regressions.

Exchange rate movements in the period preceding the acquisition have virtually no influence on the acquirer's wealth gains. Recent appreciation of the buyer's currency (FXAPP) has a weakly positive effect. This result suggests that the benefit of paying a lower price for the target is likely to be offset by depreciation in the target's future cash flows once they are converted into the buyer's domestic currency. Cakici et al. (1996) document an opposite exchange rate effect, as they show that a weakening US dollar is associated with a negative wealth effect for US acquirers of foreign (mainly)

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non-financial targets. However, their reported wealth effect is not robust to model specification. Our results are consistent with Kiymaz (2004), who reports positive but not significant relation between a stronger U.S. dollar and higher wealth creation. In a study of 1273 US firms acquired during the period 1970-1987, Harris and Ravenscraft (1991) found that abnormal returns of US targets are significantly positively related to a stronger currency of the bidder's country.

3.5.5 Relationship between Risk and Valuation Effects

We finally investigate the relationship between wealth and risk effects. Notwithstanding the existence of synergies between the combined firms, the expected rate of return is anticipated to change in the same direction as changes in systematic risk so that no abnormal returns should arise from the acquisition. On the other hand, changes in total risk may affect the value of the acquirer if some form of limited liability value is taken into consideration.

Table 3-9 presents the regression results of CARs measured over the 4-day window (-1, 2) with the risk measures described in section 3.2. We observe that changes in total risk relative to the home index have only limited association with abnormal returns. The conclusion appears to be consistent across sub-samples. Changes in total risk relative to the world finance index are reported to be negatively associated with CARs, and the results are significant for cross-border deals and the entire sample. Cross-border acquirers benefit from decreasing their risk relative to the world index as their stock prices register a significant positive variation. The decrease in risk should lower the expected rate of return. In this case, firm value increases given that its cash flows remain unchanged. Amihud et al (2002) report increasing risk related to increasing stock returns in cross-border bank acquisitions (although with a less significant coefficient). The suggested interpretation is that increasing risk benefits the acquiring firm's shareholders as it increases the firm's limited liability option value (see John et al., 1991; Gollier et al., 1997). In addition, regulators may arrange financial support with taxpayers' money to avoid the firm's insolvency, which is also more valuable the higher the firm's risk. We finally note that, as the Capital Asset Pricing Model suggests,

Table 3-8: Determinants of acquirer's wealth change

Independent variable	Pred. Sign	All Deals			Domestic			Cross-border				
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 4	Model 5
Constant		0.04639	0.04643	0.03951	0.03502	0.03583	0.07033	-0.02418	-0.02586	-0.03158	-0.00597	-0.01736
		2.20**	2.21**	1.86*	0.65	0.67	1.75*	-0.89	-1.01	-1.18	-0.18	-0.55
Governance variables												
SAAS	+	-0.00203	-0.00204		0.00579	0.00571		-0.00226	-0.00211		-0.00234	-0.00298
		-0.96	-0.96		0.67	0.65		-0.80	-0.80		-0.83	-1.08
ADRI	+	0.00373	0.00374	0.00269	0.00359	0.00352	0.00293	0.00638	0.00637	0.00465	0.00748	0.00736
		1.39	1.40	1.28	0.66	0.66	0.52	1.75*	1.77*	1.71*	1.98**	1.93*
Transaction variables												
BIDDERSIZE	-	-0.00426	-0.00424	-0.00431	-0.00824	-0.00830	-0.00811	0.00474	0.00470	0.00456	0.00432	0.00485
		-2.34**	-2.37**	-2.36**	-3.27**	-3.49**	-3.31**	1.56	1.59	1.52	1.39	1.60
ATTITUDE	-	-0.01454	-0.01464	-0.01454	-0.00408	-0.00377	-0.00482	-0.03064	-0.03037	-0.02999	-0.03151	-0.03264
		-2.16**	-2.26**	-2.16**	-0.45	-0.45	-0.53	-3.47**	-3.44**	-3.38**	-3.56**	-3.66**
SERIALBIDDER	-	-0.01089	-0.01090	-0.01052	-0.01329	-0.01322	-0.01266	-0.02546	-0.02567	-0.02524	-0.02947	-0.02690
		-1.55	-1.55	-1.49	-1.71*	-1.72*	-1.60	-1.88*	-1.88*	-1.88*	-2.01**	-1.87*
DIVERSIF	-	0.00047		0.00067	-0.00121		-0.00111	-0.00202		-0.00043	-0.00127	-0.00251
		0.09		0.13	-0.15		-0.14	-0.31		-0.07	-0.19	-0.39
CASHONLY	-	0.00066	0.00073	0.00090	-0.00115	-0.00132	-0.00098	0.00181	0.00176	0.00254	0.00202	-0.00049
		0.11	0.12	0.15	-0.13	-0.16	-0.11	0.24	0.23	0.34	0.23	-0.06
DISTANCE	-							0.00000	0.00000	0.00000	0.00000	0.00000
								0.95	0.95	1.31	0.75	1.13
XBORDER	+	-0.00021	-0.00024	0.00106								
		-0.04	-0.04	0.19								
Macroeconomic variables												
ECO	+	0.00090	0.00089	0.00086	-0.02655	-0.02644	-0.02638	0.00099	0.00102	0.00097	0.00090	0.00109
		1.89*	1.91*	1.88*	-1.49	-1.48	-1.48	2.04**	2.32**	2.05**	1.81*	2.14**
FXVOL	-							-0.00219	-0.00210	-0.00197	-0.00325	-0.00293
								-1.88*	-1.93*	-1.74*	-2.29**	-2.08**
GDPCOR	-										-0.01309	
											-1.15	
RELINF	-										-0.00004	-0.00004
											-2.48**	-2.42**
FXAPP	-										0.03813	0.04225
											0.62	0.68
Observations		211	210	210	137	136	136	62	61	61	65	64
Adjusted R2		0.0601	0.0647	0.0610	0.0991	0.1059	0.1047	0.1476	0.1630	0.1488	0.1550	0.1470

The dependent variable is the acquirer's cumulated abnormal return against home finance index over the 4-day period (-1,+2) surrounding the merger announcement. SAAS is the strength of auditing and accounting standards published in The Global Competitiveness Report 2008-2009. ADRI is the Anti-director Rights index designed by LLSV (1998) and extended by Pagano and Volpin (2005).

BIDDERSIZE is the log of acquirer firm market capitalisation in USD. The dummy ATTITUDE specifies whether the deal is a friendly acquisition or not. SERIALBIDDER dummy differentiate whether the acquirer make multiple deals above average number of acquisitions all bidders made. DIVERSIF indicates that the target operates mostly in a different business line. The dummy CASHONLY specifies whether the transaction is paid in cash. The DISTANCE variable is the actual distance between the capital cities of home and host countries. XBORDER is the dummy variable to specify whether the deal is domestic or cross-border deal. ECO is measured by the host country's above-average growth rate in the year preceding the acquisition. Exchange rate volatility FXVOL is measured by the standard deviation of home and host countries'cross currency daily exchange rates in the year preceding the announcement. GDPCOR is the 10-year correlation of growth rates between the host and home countries. RELINF is the difference of inflation rates between the host and home countries over a 5 year period preceding the merger completion. FXAPP is the appreciation rate of the home currency against the host currency in the year preceding the announcement. ***, **, * indicates significance at 1%, 5% and 10% level

Table 3-9: Relationship between valuation effect and risk effect

The dependent variable is the acquirer's cumulated abnormal return against home finance index over the 4-day period (-1,+2) surrounding the merger announcement. DTRR home (world) is the change in the acquirer's total risk relative to the home (world) finance index. DTRR home (world) is the change in the acquirer's systematic risk with respect to the home (world) finance index. Risk change is measured around the merger's completion date. The period before is -260 days to -10 days prior to completion of the acquisition for risk change (and before the announcement for abnormal returns). The period after is +10 days to +260 days following merger completion for risk change..

	ΔTRR home				ΔTRR world				ΔTRR(home and world)		
	Entire sample	Domestic	Cross-Border		Entire sample	Domestic	Cross-Border		Entire sample	Domestic	Cross-Border
Constant	0.00537	0.0090	-0.0014		0.0043	0.0074	-0.0004		0.00561	0.0089	-0.0012
	1.73*	2.2**	-0.36		1.60	1.96*	-0.11		2.07**	2.37**	-0.40
ΔTRR home	-0.00009	0.00092	-0.00397								
	-0.07	0.59	-1.23								
ΔTRR world					-0.0016	-0.0011	-0.0036				
					-1.88*	-1.16	-2.33**				
Δβ home									-0.0058	-0.0151	0.0253
									-0.62	-1.72*	1.02
Δβ world									-0.0052	-0.0070	-0.0159
									-0.48	-0.60	-0.71
Adjusted R2	-0.0049	-0.0046	0.0239		0.0274	0.0074	0.1071		-0.0041	0.0083	0.0092
Observations	211	135	76		211	135	76		211	135	76

***, **, * indicates significance at 1%, 5% and 10% level

increase in systematic risk appears to lower the acquirer's stock price, particularly for domestic deals and systematic risk measured against the home finance index.

3.6 Conclusion

Deregulation of financial services markets and increased foreign competition, along with significant social and economic changes, have stimulated both domestic and cross-border acquisitions in the insurance industry. This trend is unlikely to subside. Moshirian (2008) analyses the possible union of the Asia-Pacific region and argues that significant financial transformation is expected in the Asia-Pacific countries. Our research has tried to fill the gap in the current literature by analyzing the risk and valuation consequences of these transactions.

While firms acquiring targets in the same country experience significant positive cumulative abnormal returns, we find little evidence that cross-border takeover activity creates shareholder value for the acquiring firm. The insignificant valuation effects are consistent with those obtained by Amihud et al. (2002) regarding cross-border bank acquisitions. Akhigbe and Madura (2001) report more substantial wealth gains for US domestic insurance acquisitions, using a simpler model for stock returns. While targets experience significantly positive abnormal returns, rival firms react negatively to cross-border deals because they face stronger competitors. Overall, the results suggest that the expected benefits of international expansion are broadly offset by the expected costs of running and monitoring distant operations. Expansion in foreign countries blessed with exceptionally strong economic conditions is an argument for undertaking foreign acquisitions as they have a significantly positive effect on shareholder value. But expansion into foreign countries with a higher inflation rate than the home countries significantly reduces acquirers' wealth. Acquisitions in countries characterised by a declining exchange rate are not necessarily detrimental to the acquirer's shareholders, as they might present the opportunity to reduce the target's price. The volatility of cross-currency exchange rates between the home and host countries is negatively related to merger wealth effects. Expansion into foreign countries with good investor protection helps bidders increase their wealth

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significantly. The market reacts positively to large insurers making cross-border acquisitions while it penalises larger insurers making domestic acquisitions. Acquisitions that contribute to the diversification of the acquirer's product line appear to be inconsequential as well in terms of shareholder value. These results are in contrast to a number of previous studies. Kiymaz (2004) finds that shareholders of US financial institutions realise significant gains from acquisitions in developing countries but experience a significant loss when the target's home country is characterised by above-average economic growth. Cybo-Ottone and Murgia (2000) also show that cross-border acquisitions by European financial services firms create more value when they are associated with a significant diversification of the acquirer's business. We find that markets react negatively to those insurers making unfriendly deals overseas.

We also find that cross-border acquisitions tend to decrease the acquiring firm's total risk while keeping systematic risk unchanged in relation to the home finance index. This result constitutes another piece of evidence suggesting that international expansion allows the acquirer to reduce some unsystematic risk deriving from its own business cycle. This also explains why foreign direct investments by multinational firms produce the expected risk reduction that can be achieved through international portfolios. Overall, there appears to be little concern for insurance regulators that cross-border acquisitions will increase the risk profile of insurance firms.

This chapter provides empirical evidence that good quality of governance significantly reduces the change in risk experienced by bidder firms. While they have explanatory power in relation to the acquirer's wealth change, macroeconomic variables also have a significant association with the acquirer's change in risk profile. In particular, favourable growth rates in the target's domestic economy tend to decrease the acquirer's change in total risk. High volatility in cross-currency exchange rates increases the acquirer's risk profile in foreign deals. The results suggest that macroeconomic factors have a lasting influence on the acquirer's business risk and should be considered carefully before undertaking any overseas acquisition. We also find that deal-specific variables play an important role in changing a cross-border

acquirer's risk profile. Cross-border acquirers with larger market value or making serial mergers increase their risk after acquisition.

We investigate the relationship between changes in risk and wealth effects. For cross-border insurers' acquisitions, we find that abnormal returns are significantly negatively associated with a decrease in total risk. This is in contrast to Amihud et al. (2002) regarding cross-border bank acquisitions, who find that the abnormal returns of cross-border bidding banks are significantly associated with an increase in their total relative risk. Our finding is consistent with CAPM, that a decrease in risk reduces the expected rate of return, and therefore increases the value of acquirers.

CHAPTER 4

RIVALS' RESPONSE TO MERGERS AND ACQUISITIONS IN THE BANKING AND INSURANCE INDUSTRY

4.1 Introduction

Recent research on M&As has increased the public's awareness of the possibility that M&A activities could transmit intra-industry signals to the competitors of both the acquirer and the target, spurring further research to investigate the intra-industry wealth effects on the rivals of firms involved in M&As. Existing research has provided extensive documentation that rivals of firms involved in M&As are influenced by the M&A activities, however the wealth effects of such an impact are ambiguous.

Grossman and Hart (1980) first discussed types of bidding behaviour amongst acquirers, highlighting the fact that bidders tend to make either acquisitional bids or allocational bids in different circumstances. A target firm whose stock price might be undervalued on the stock market with respect to its true performance might be subject to an acquisitional bid. This is largely due to the incapability of existing management to increase shareholders' wealth. Target firms may be subject to allocational bids when bidding firms come into possession of exclusive information that is not available to the public. Such information may be derived from the identification of an inefficient management and the ability of the bidder to extract gains by reviewing management decisions after they have acquired the target. The acquirer would then be able to revalue the merger entity after including the target and its assets. Such revaluation would inject greater motivation into the acquirer's bid, as the proforma value of the combined entity would typically exceed any existing public valuation. Acquisitional bids typically result in the redeployment of income from the uninformed to the informed investors, an expensive result since resources are used up during income redistribution. In contrast with allocational bids, acquisitional bids are seen to be

harmful by the shareholders as they are unable to spot such bids and would experience diminishing returns.

Following on from the theory of allocational bids in Grossman and Hart (1980), Eckbo (1983) explored how horizontal mergers impacted the key horizontal competitors of target firms, and find that rivals in their database of 65 horizontal mergers experience significantly positive abnormal returns around the merger announcement date. Merger deals that involve more than one bidder typically resulted in better share price performance for both bidder and target firms compared to unchallenged mergers, over the merger event window. Eckbo (1983) reports that rivals of horizontal mergers typically record positive abnormal performance around the merger proposal announcement date, with evidence towards the convergence of the rivals' share price returns. Unsurprisingly, positive news announcements for the merging parties also point toward similarly positive effects for the rivals. Eckbo (1983) found that there was insignificant evidence to presume a decrease in the value of rivals when horizontal mergers were proposed. The share price performance of rivals in horizontal unchallenged mergers and vertical unchallenged mergers within the same industries were no different from one another, presenting no significant evidence of any collusion between the merging parties. In addition, rivals would reflect a negative response if they faced increased competition arising from the formation of a more efficient combined entity.

Mitchell and Stanford (2001) argue that deregulation can led to a high level of M&A activities. During the process of deregulation in the global financial industry, over 22,000 financial firms were acquired between 2002 and 2010, according to Thomson Reuters data. While a substantial proportion of financial M&As occurs in the banking sector, the insurance sector plays an important role as well, accounting for 14% of the deals in the financial sector in the first half of 2010. Among the large number of past studies of M&As in the financial industry, the intra-industry effects in the financial sector become an interesting topic for researchers.

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Akhigbe and Madura (1999) study intra-industry signals transmitted from bank mergers, and explain the reasons that cause variations in intra-industry effects and the difference in valuation effects among rival banks. The authors attempt to explain the deviation in intra-industry effects in their sample by differentiating between (1) time series effects that cause the intra-industry effects to diverge from the time of the acquisition, and (2) cross-sectional effects due to different rival bank-specific characteristics. Akhigbe and Madura (1999) found that there would be larger apparent effect on those rival banks that possess characteristics which may increase the odds of their becoming eventual targets. Investors reassess the values of rival banks during the period of merger or acquisition announcements, where rival bank-specific and event-specific factors are both taken into account. The study established that the merger event reveals information that could benefit the rival banks or the rival banks themselves could be seen as potential targets, so we can predict a positive relation between the target's cumulative abnormal return (CAR) and the rival bank portfolio CAR. Conversely, a negative relation could be predicted if the merger creates a larger bank that would be more operationally efficient than its weaker rivals.

Song and Walking (2000) report positive and significant rivals' abnormal returns emerging from M&A activities in unregulated industries. They also find that unregulated rival firms respond to acquisition events differently to regulated rivals, and argue that regulatory approval decreases their probability of being acquired. The sample contains 141 deals in unregulated industries and 23 deals in regulated industries, with 2459 rivals and 238 rivals respectively. The banking and insurance industry is not separately studied in their research.

The topic of intra-industry and valuation effects on acquirers, targets and their rivals is further discussed in Akhigbe and Madura (2001), where the authors assess acquirer and target insurance companies' valuation effects, and the reactions of competitors to the acquisition announcements, in an attempt to explain the cross-sectional variation in intra-industry effects among the rival insurance companies. The acquirer and target insurance companies were found to experience significantly positive valuation effects,

while the studies also established that intra-industry valuation effects are significantly positive in relation to the merger announcements.

Chen, Li and Moshirian (2005) measure the response of rival financial firms in Hong Kong and Mainland China after the announcements of partial privatisation plans by Bank of China Hong Kong, which would likely be revitalised after the partial privatisation plans, leading to the negative reactions experienced by its rivals as they contemplate having to compete with a more efficient competitor that would be capable of offering more diversified products. In cases where negative reactions of rivals were unobserved, it could be because of the possibility of the bank being unsuccessful in realising all of its fiscal and commercial plans.

Certain takeovers may be largely motivated by a desire to become more efficient and productive. Recent literature has indicated that rivals would experience a positive response if M&As disclosed information about industry-wide restructuring (Mulherin & Boone, 2000; Andrade, Mitchell & Stafford, 2001; and Andrade & Stafford, 2004). Horizontal takeovers could also be an indication of increased collusion between merging firms, with the aim of profiteering by driving up rival monopoly rents (Eckbo, 1983; and Shahrur, 2005). Similarly, horizontal takeovers could also aid merging firms to lower their operating costs and other outlays by intensifying supplier competition. Shahrur (2005) found that efficiency considerations were the primary drivers of horizontal takeovers in their sample, as opposed to the other theories of collusion and buyer power. There was a lack of any significant evidence supporting the suggestion that collusive activities did in fact increase the bargaining power of the merging firm, most notably in an already overheated supplier industry where both parties of the merger were large firms. Their results found that targets earned an average cumulative return of 15.89% in (-1,0) event window of the announcement date. Acquirers measured -0.61% over the same event window, however the combined wealth effect averaged 2.25% in that event window, and 3.52% over 20 days surrounding the announcement date. Customers averaged a positive significant cumulative abnormal return of 0.50% and suppliers averaged -0.48% over the same 20-day period, while

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rivals gained an average of 0.39% over a 5-day event window surrounding the announcement date. The results provide evidence to show that suppliers were the only losers during takeover announcements.

Bedeck and Waller (2007) study merger events in the US banking industry, and their results support the view that investors regard M&A events as positive, geographic signals. Their results do not support the view that bank mergers increase efficiency. They suggest that the positive abnormal returns experienced by rival banks reflect event-specific and firm–specific characteristics. These characteristics are not explored in their paper.

In summary, rival firms' wealth effects arising from acquisition announcements, and explanations of them, are not consistent in past research. The most cited explanations of the intra-industry effects include the following.

1. Increase in market concentration or increased efficiency improves profit among the largest players

2. Increased probability of a rival firm being a target

3. Investors are not able to access the value of acquisitions due to rapid change in regulations, technologies, industry structure, and merger profiles (DeLong and DeYoung 2007). This view implies that intra-industry effects cannot be explained.

4. Increase in collusion among rival firms.

In this chapter, we examine the wealth effects of bidder, targets and rivals in banking and insurance industries. We report significantly negative wealth effects experienced by bidders, and significantly positive effects experienced by both targets and rivals. Our results are consistent with the hypothesis that a merger event transmits an intra-industry signal that the probability of rival firms becoming a target increases. We further examine the event-specific and firm-specific characteristics that determine the

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intra-industry effects. We find that rival firms' wealth effects are significantly positively related to targets' CARs. The results indicate significant relations between a rival's wealth effects and its firm-specific characteristics, and document that those firms with smaller firm size and higher book to market value experience larger wealth effects. The results further support the view that investors interpret the acquisition effects as a signal that competitors of targets are more likely to become takeover targets.

Focarelli and Pozzolo (2008) use a unified framework to investigate cross-border M&As of banking and insurance companies. They report that common factors determine international acquisitions of both banks and insurance firms, which also share very similar patterns. This Chapter also uses a unified framework to study M&As of banking and insurance companies. Differently from Focarelli and Pozzolo (2008), we examine both domestic deals and cross-border deals, and we focus on rivals' response and its determinants.

We organise the chapter as follows. Section 4.2 describes the data. Section 4.3 presents the methodology and reports empirical results on wealth effects. Section 4.4 discusses determinants of rivals' wealth effects. Section 4.5 concludes.

4.2 Data

We examine transactions during 01/01/1990 –31/12/ 2009 where target firms are either banks or insurance companies. We download mergers information from the Thomson Financials SDC database. Banks have a two digit SIC code of 60 while insurance companies have a two digit SIC code of 63 or 64. There are a total of 22711 deals announced in 189 countries. In our sample, we consider completed mergers and acquisitions. Before the transaction, the acquirer owns less than 20% of the target, and after the transaction, the acquirer owns more than 50% of the target. Both the acquirers and targets must be public firms with daily share price data available. There are a total of 1355 transactions in our final sample, where 1167 deals have banks as targets and

188 deals have insurance companies as target. Between year 1997 and year 2000, there are a total of 476 M&A activities in the sample and the four years appear to be the most active years in the banking and insurance sector. In terms of countries, firms based in the United States involve in majority of the deals, where 1069 of the acquirers and 1096 of the targets are based in the US. (See Table 4-1) In Table 4-1, the "Rival" column shows the total number of banks and insurance firms in each country. We select the rival firms based on the following criteria. Firstly, they are not one of the acquirers. For each country, the same rival insurers are included in the SUR regression for the test of each announcement. Secondly, those rival insurers are actively trading on a stock exchange during the estimated period. In other words, share price information is available for the study. The study includes rival firms in most acquirer's home countries. There are a total of 6474 sample rival firms, where 5267 of them are banks and 1207 of them are insurance companies. In the banking sector, 3606 rivals are based in United States, followed by Japan (149) and Brazil (113). United States also have the most number of insurance rivals (597), United Kingdom is number two (116), Germany is the third in number (70). The source for market indices, currency exchange rates and country interest rates is Thomson Financial Datastream.

4.3 Rival Firms' Wealth Effects

We compute abnormal returns following standard procedures. To separate event-related returns from market-wide returns, we first break down individual stock returns into a systematic and a non-systematic component. Two sources of systematic risk are considered for each acquirer: the country finance index RI_{Home} and the world finance index RI_{World}. The world finance index is converted to a company's country currency using daily foreign exchange rates. Noting that both indices can be highly correlated, we use a procedure similar to Amihud et al. (2002) for isolating country financial returns from world financial returns. The regression of RI_{Home} on RI_{World} over the period -260 days to -11 days relative to the announcement date provides the home returns RI_{Home}^{*} not explained by world insurance returns. INT_{home} is a control variable and is measured as the daily interest rate change of the country (Otchere and Chan

Table 4-1: Transaction Distributions

Panel A: Origin of Acquirers (A.) , Targers (T.) and Rivals (R.)									
	Banking&Insurance			Banking			Insurance		
Country	A.	T.	R.	A.	T.	R.	A.	T.	R.
Total	1355	1355	6474	1167	1167	5267	188	187	1204
Argentina	1	1	13	1	1	13			
Australia	18	15	62	11	9	36	7	6	26
Austria	2	1	33	2	1	33			
Bahrain	1			1					
Belgium	9	5	49	5	4	34	4	1	15
Bermuda	7	7			1		7	6	
Brazil	3	3	113	3	3	113			
Canada	17	5	55	7			10	5	55
Chile	1	2	30	1	2	30			
China	2			2					
Colombia	1			1					
Cyprus	1			1					
Czech Republic		3	7		3	7			
Denmark	5	7	83	4	6	69	1	1	14
Egypt		1	24		1	24			
Finland	1	1	6				1	1	6
France	16	11	127	12	7	82	4	4	45
Germany	14	9	128	8	6	58	6	3	70
Greece	2	5	38	1	4	28	1	1	10
Guernsey	1						1		
Hong Kong	2	5	22	1	4	16	1	1	6
Iceland	3	2	11	2	1	6	1	1	5
India	2	1	47	2	1	47			
Indonesia	3	7	71	2	6	59	1	1	12
Ireland-Rep	1	3	10		2	5	1	1	5
Italy	28	24	143	23	19	106	5	5	37
Japan	28	27	175	18	18	149	10	9	26
Kazakhstan		1	18		1	18			
Lebanon	1			1					
Liechtenstein	1			1					
Malaysia	5	3	27	5	3	27			
Mexico	1	2	48	1	2	48			
Netherlands	11	5	33	7	3	22	4	2	11
Norway	10	13	72	7	11	57	3	2	15
Pakistan	2	3	30	2	3	30			
Panama		1			1				
Peru	1	2	30	1	2	30			
Philippines	3	4	25	3	4	25			
Poland		3	27		3	27			
Portugal	2	5	34	2	5	34			
Puerto Rico	1	1		1	1				
Russian Federation		1	26		1	26			
Singapore	4	1	15	4	1	15			
South Africa	2	2	66	1	1	38	1	1	28
South Korea	4	5	45	4	5	45			
Spain	14	4	48	12	4	48	2		
Sri Lanka	1	1	8				1	1	8
Sweden	7	3	44	7	2	33		1	11
Switzerland	4	5	113	2	3	75	2	2	38
Taiwan	10	10	40	8	8	28	2	2	12
Thailand	4	9	45	3	8	18	1	1	27
Trinidad&Tob		1			1				
Turkey	2	4	45	1	3	36	1	1	9
United Kingdom	27	23	151	16	10	35	11	13	116
United States	1069	1096	4203	970	981	3606	99	115	597
Venezuela		2	34		1	31			

Panel B: Year of Transactions

Year	Banking and Insurance	Banking	Insurance
Total	1355	1167	188
1990	21	19	2
1991	25	21	4
1992	40	37	3
1993	38	36	2
1994	65	55	10
1995	82	71	11
1996	79	65	14
1997	124	106	18
1998	109	88	21
1999	131	111	20
2000	112	96	16
2001	86	76	10
2002	59	54	5
2003	79	67	12
2004	77	73	4
2005	63	56	7
2006	65	58	7
2007	49	42	7
2008	36	28	8
2009	15	8	7

2003). We then estimate a two-factor model of stock returns in event window (-260, -11) before the announcement date:

$$R_{j,t} = \alpha_j + \beta_{world,j} RI_{world,t} + \beta_{country,j} RI^*_{home,t} + \gamma_{country,j} INT_{country,t} + e_{j,t} \tag{4.1}$$

We also consider variations of equation (4.1): 1. Use world and country market index, 2. Use only country market or finance index, 3. Use only world market or finance index. The results are similar to equation (4.1) and are not reported separately. For each day in the (-10,+10) event window surrounding the announcement, abnormal returns (ARs) are the results of subtraction between actual and expected returns. Cumulative abnormal returns (CARs) are computed over various windows (t_1, t_2) around the announcement date by simply summing up the relevant ARs. The length of the window is varied in order to capture any information leakages to the market and to determine over which windows the returns have the greatest significance. The same methodology applies to wealth effect of both acquirers and targets.

$$AR_{j,t} = R_{j,t} - (\hat{\alpha}_j + \hat{\beta}_{world,j}RI_{world,t} + \hat{\beta}_{country,j}RI^{*}_{home,t} + \hat{\gamma}_{country,j}INT_{country,t}) \tag{4.2}$$

$$CAR_j = \sum_{t=t_1}^{t_2} AR_{j,t} \tag{4.3}$$

We consider rival firms which are based in the same country as the target company. The number of rival firms varies country by country. We select the rival firms based on the following criteria. First, they are not one of the acquirers. The number of rival firms of a country can vary for different events, because in the 20 years of the sample period, there are new listed firms and delisted firms. Second, those rival insurers are actively trading on a stock exchange during the estimated period. In other words, share price information is available for the study.

We use two methods to measure the valuation effects of rival firms. In the first method, similarly to Akhigbe and Madur (1999), we consider all the rival firms in a country as a single portfolio, and calculate the portfolio daily stock return. Then we use equation (4.1) and (4.2) to measure the CARs of the portfolios. In method two, we calculate the CARs of each individual rival firm, and we test whether the number of positive ARs and CARs is different from the negative ones.

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Table 4-2: Wealth effect - Acquirers and Targets (against interest rate change and finance index)

Panel A: Average abnormal return over -10 days to +10 days surrounding the announcement date

| | Entire Sample | | | | Banking Deals | | | | Insurance Deals | | | |
| | Acquirers | | Targets | | Acquirers | | Targets | | Acquirers | | Targets | |
	AAR (%)	t-statistics	AAR (%)	t-statistics	AAR (%)	t-statistics	AAR (%)	t-statistics	AAR (%)	t-statistics	AAR (%)	t-statistics
Day -10	0.01	0.14	0.24	2.37**	-0.03	-0.38	0.22	2.01**	0.26	1.45	0.36	1.41
Day -9	0.07	1.02	0.03	0.28	0.08	1.05	-0.03	-0.32	0.10	0.58	0.42	1.68*
Day -8	0.00	0.03	0.19	1.90*	-0.04	-0.56	0.21	1.99**	0.36	2.00**	0.03	0.11
Day -7	0.01	0.09	0.46	4.59**	0.02	0.31	0.46	4.23**	-0.09	-0.50	0.45	1.79*
Day -6	-0.13	-1.91*	0.25	2.49**	-0.15	-1.96*	0.26	2.40**	-0.05	-0.28	0.18	0.71
Day -5	0.01	0.15	0.20	1.99**	-0.01	-0.09	0.23	2.11**	0.12	0.69	0.00	0.01
Day -4	0.00	0.04	0.20	2**	-0.01	-0.10	0.27	2.48**	0.09	0.53	-0.24	-0.94
Day -3	-0.12	-1.67*	0.45	4.53**	-0.10	-1.36	0.45	4.16**	-0.18	-1.04	0.46	1.80*
Day -2	0.02	0.24	0.64	6.55**	0.00	0.04	0.60	5.61**	0.11	0.60	0.94	3.70**
Day -1	0.08	1.14	1.44	14.61**	0.08	1.05	1.38	12.92**	0.03	0.17	1.81	7.18**
Day 0	-1.19	-17.32**	9.22	92.74**	-1.27	-17.13**	9.04	83.83**	-0.77	-4.33**	10.31	40.81**
Day 1	-0.41	-5.96**	3.89	39.29**	-0.50	-6.70**	3.84	35.76**	0.10	0.58	4.20	16.61**
Day 2	-0.14	-2.08**	-0.03	-0.32	-0.17	-2.29**	-0.03	-0.31	-0.02	-0.11	-0.02	-0.09
Day 3	-0.18	-2.62**	-0.04	-0.40	-0.20	-2.66**	-0.05	-0.50	-0.11	-0.61	0.05	0.19
Day 4	-0.08	-1.22	-0.04	-0.42	-0.11	-1.51	-0.11	-1.04	0.08	0.45	0.41	1.62
Day 5	0.00	0.02	0.03	0.32	0.05	0.71	0.04	0.34	-0.32	-1.81*	0.00	0.01
Day 6	-0.08	-1.15	-0.11	-1.07	0.00	0.02	-0.04	-0.35	-0.54	-3.03**	-0.54	-2.14**
Day 7	0.05	0.68	0.03	0.27	0.00	0.06	-0.03	-0.27	0.28	1.54	0.39	1.53
Day 8	0.11	1.53	-0.07	-0.71	0.09	1.23	-0.06	-0.60	0.21	1.19	-0.11	-0.43
Day 9	-0.23	-3.29**	0.02	0.17	-0.23	-3.09**	-0.01	-0.06	-0.16	-0.89	0.17	0.67
Day 10	-0.13	-1.94*	-0.11	-1.12	-0.09	-1.20	-0.11	-1.03	-0.39	-2.20**	-0.11	-0.42

Panel B: Cumulative abnormal return surrounding the announcement date

| | Entire Sample | | | | Banking Deals | | | | Insurance Deals | | | |
| | Acquirers | | Targets | | Acquirers | | Targets | | Acquirers | | Targets | |
	CAAR (%)	t-statistics	CAAR (%)	t-statistics	CAAR (%)	t-statistics	CAAR (%)	t-statistics	CAAR (%)	t-statistics	CAAR (%)	t-statistics
Day -10 to 2	-1.85	-7.23**	17.15	48.07**	-2.09	-7.80**	16.88	43.59**	0.02	0.03	18.89	20.74**
Day -1 to 1	-1.57	-12.78**	14.54	84.89**	-1.69	-13.15**	14.26	76.73**	-0.82	-2.07**	16.32	37.29**
Day -1 to 2	-1.71	-12.11**	14.51	73.31**	-1.86	-12.53**	14.23	66.25**	-0.86	-1.89*	16.30	32.26**
Day -1 to 3	-1.90	-12.01**	14.47	65.35**	-2.06	-12.4**	14.18	58.99**	-0.99	-1.93*	16.34	28.94**
Day 0 to 1	-1.65	-16.47**	13.11	93.43**	-1.77	-16.85**	12.88	84.63**	-0.85	-2.64**	14.50	40.60**
Day 0 to 2	-1.79	-14.65**	13.07	76.10**	-1.94	-15.08**	12.85	68.92**	-0.90	-2.26**	14.48	33.12**

Table 4-2 reports the abnormal returns (AR) and cumulative abnormal returns (CAR) surrounding the merger announcement of acquirers and targets. *, ** represent 10 percent and 5 percent significant levels, respectively.

Wealth effects of acquirers and targets are reported in table 4-2. In Panel A of table 4-2, banking acquirers experience a -1.27% abnormal return and insurance bidders experience a -0.77% abnormal return on the announcement date, both significant at the 95 percent confidence level. The results are consistent with US bank merger studies which report a significant negative wealth effect for bidder banks, for example Cornett and Tehranian (1992) and Houston and Ryngaert (1994). In a study of banks located in Europe, Cybo-Ottone and Murgia (2000) report significant positive CARs for bidder firms. In our sample, there are more US deals than all other deals in other regions. On the other hand, target bankers and insurers both experience significantly positive abnormal returns of 9.04% and 10.31% respectively at event announcement. The results are consistent with the literature and indicate that acquirers over-bid targets. We also observe that both bidders and targets start to experience significant abnormal returns at least 10 days before the deal announcement. This is consistent with findings in past literature such as Bradley (1980). In all five event windows, banking acquirers experience negative CARs at 5% significant level, while banking targets experience positive CARs at 5% significant level. For insurance deals, acquirers experience negative CARs between day -1 and 1, and between day 0 and 1 at 5% significant level. Between day -1 and 2, and between day -1 and 3, insurance bidders experience negative CARs at 10% significant level. Target insurers experience positively significant CARs in all five event windows at 95% confidence level. Our insurance deals results are consistent with Cummins and Weiss (2004), who also report significant negative CARs for acquirers and significant positive CARs for targets.

Table 4-3 reports rival firms' wealth effects. Both the banking and insurance rival firms experience significant positive portfolio AARs one day after the event announcement. In the banking industry, the number of positive rival firm ARs is 65% of the number of negative ARs, significant at 95% confidence level. There is no strong indication from the ARs whether rival firms increase or decrease in wealth. Panel B reports CARs results. For banking firms, rivals experience positive 0.08% to 0.11% CAARs in all five event windows, where four are significant at 5% level. The number

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Table 4-3: Wealth effect - Rival Firms (against interest rate change and finance index)

Panel A: Average abnormal return over -10 days to +10 days surrounding the announcement date

	Banking Deals				Insurance Deals				Entire Sample	
	Portfolio AAR (%)	t-statistics	firm ARs + vs -	t-statistics	Portfolio AAR (%)	t-statistics	firm ARs + vs -	t-statistics	firm ARs + vs -	t-statistics
Day -10	0.02	1.05	0.75	-1.65	0.00	0.04	1.05	0.23	0.85	-1.17
Day -9	0.00	-0.17	0.78	-1.47	-0.10	-1.43	0.62	-2.11**	0.72	-2.44**
Day -8	0.03	1.63	1.55	2.55**	0.07	1.03	1.17	0.69	1.40	2.44**
Day -7	0.04	2.35**	1.08	0.43	-0.12	-1.79*	1.17	0.69	1.11	0.76
Day -6	-0.01	-0.40	0.99	-0.09	-0.01	-0.13	0.85	-0.69	0.94	-0.48
Day -5	-0.04	-2.29**	0.93	-0.43	-0.11	-1.64	0.55	-2.62**	0.77	-1.87*
Day -4	-0.03	-1.41	1.11	0.60	0.10	1.48	1.53	1.87*	1.24	1.59
Day -3	0.01	0.44	0.85	-0.95	-0.08	-1.16	0.62	-2.11**	0.76	-2.01**
Day -2	0.01	0.45	1.01	0.09	-0.02	-0.28	0.73	-1.38	0.90	-0.76
Day -1	-0.01	-0.33	1.25	1.29	-0.05	-0.76	0.95	-0.23	1.13	0.89
Day 0	0.03	1.58	0.93	-0.43	0.09	1.32	1.17	0.69	1.01	0.07
Day 1	0.06	3.13**	0.65	-2.55**	0.18	2.66**	1.00	0.00	0.76	-2.01**
Day 2	0.00	-0.17	1.01	0.09	0.03	0.51	1.24	0.92	1.09	0.62
Day 3	0.02	1.09	1.21	1.12	0.09	1.28	0.90	-0.46	1.09	0.62
Day 4	0.01	0.66	0.90	-0.60	-0.09	-1.36	1.62	2.11**	1.11	0.76
Day 5	0.00	-0.12	1.11	0.60	-0.08	-1.12	0.62	-2.11**	0.90	-0.76
Day 6	0.01	0.70	1.05	0.26	-0.02	-0.34	0.90	-0.46	0.99	-0.07
Day 7	0.00	-0.15	0.67	-2.36**	0.09	1.34	1.05	0.23	0.79	-1.73*
Day 8	0.01	0.28	0.78	-1.47	0.04	0.58	1.11	0.46	0.88	-0.89
Day 9	0.00	0.13	0.80	-1.29	0.11	1.68*	1.71	2.36**	1.05	0.34
Day 10	0.00	-0.22	1.01	0.09	0.03	0.51	0.77	-1.15	0.92	-0.62

Panel B: Cumulative abnormal return surrounding the announcement date

	Banking Deals				Insurance Deals				Entire Sample	
	Portfolio CAAR (%)	t-statistics	firm CARs + vs -	t-statistics	Portfolio CAAR (%)	t-statistics	firm CARs + vs -	t-statistics	firm CARs + vs -	t-statistics
Day -10 to 2	0.11	1.63	1.41	2.00**	-0.01	-0.05	1.24	0.92	1.34	2.15**
Day -1 to 1	0.08	2.53**	1.21	1.12	0.22	1.86*	1.24	0.92	1.22	1.45
Day -1 to 2	0.08	2.1**	1.25	1.29	0.25	1.87*	0.85	-0.69	1.09	0.62
Day -1 to 3	0.10	2.37**	1.55	2.55**	0.34	2.24**	1.00	0.00	1.32	2.01**
Day 0 to 1	0.09	3.33**	1.41	2.00**	0.27	2.82**	0.90	-0.46	1.20	1.31
Day 0 to 2	0.09	2.62**	1.45	2.18**	0.30	2.60**	0.81	-0.92	1.18	1.17

*, ** represent 10 percent and 5 percent significant levels, respectively.

of positive individual firm CAARs is greater than negative ones in all five event windows by 21% to 55%, and three of them are significant at 95% confidence level. In a study with a sample of 148 bank mergers in the US, Bendeck and Waller (2007) report rival banks experience significant positive two-day and five-day excess returns.   Insurance rival firms experience negative portfolio CAARs in event window days -10 and 2, but these are not significant. In the other four event windows, all portfolio CAARs are significantly positive. In event windows (-10,2) and (-1,1), the number of rival insurers with positive CARs is 24% greater than that of negative CARs, but this is not statistically significant. In summary, banking rivals experience highly significant positive wealth effects around an M&A announcement, while insurance rival firms also have positive wealth effects, but these are less significant. Using a market model, Akhigbe and Madura (2001) find significantly positive ARs for rival firms in insurance M&As. Song and Walking (2000) use a sample of 141 acquisitions in unregulated industries and report positive and significant excess returns to a total of 2459 rival firms. Their results support "acquisition probability hypothesis".

4.4 Determinants of Rival Firms' Wealth Effects

In this section, we use 12 firm-specific variables and one deal specific variable to explain rival firm wealth effects. In the multiple regression model, we use three-day (-1,1) CARs of each rival firm around the merger announcement as a dependent variable, and 12 firm-specific characteristics and a deal-specific characteristic as explanatory variables.

4.4.1 Rival's Firm Size

Extant research in the area of predicting takeover targets has suggested that the probability of larger companies being acquired is much less than that of small companies.

Dietrich and Sorensen (1984) established this through the application of a logit analysis to estimate the odds that the two firms would be successfully merged, with the view that the target firm is a basis of cash flow to the acquiring firm. They found strong evidence that firm size is a highly significant variable in predicting the possibility of a takeover, both statistically and economically. The firm's market value of equity, used as a proxy for firm size, would be strongly related to the costs of an acquisition. Smaller firms would result in lower acquisition costs, thereby facilitating the ease of acquisition.

Palepu (1986) constructed an acquisition likelihood model to predict the probability of an acquisition taking place. A size hypothesis was introduced through the use of the net book value of assets, where an inverse relation between the size of the firm and the possibility of takeover was suggested. Building on the basis that the process of a takeover consists of several size-related transaction costs, the authors postulate that the larger the targets, the more acquisition costs are likely to be involved, and the fewer there are of potential suitors of the target.

4.4.2 Target's Reaction

Eckbo (1983) argue that positive target reaction signals potential efficiency gains from mergers, and rival banks are more likely to become the next target to benefit. Akhigbe and Madura (1999) state that each bank takeover announcement could have either a positive or a negative effect on its rivals. A positive target reaction can imply a more efficient bank after merger, and rival banks are disadvantaged, therefore their market value will decline. Akhigbe and Madura (1999) find that the high positive CAR sub-sample, low positive CAR sub-sample and the non-positive CAR category experience significantly positive CARs, and the CARs of the high positive CAR sub-sample are significantly higher than CARs of the low positive CAR sub-sample and the non-positive CAR category respectively. The results support the view that merger announcements reveal positive information about both targets and their competitors.

Chen and Tan (2010) report significant positive target CARs for domestic deals and insignificant negative target CARs for cross-border deals in insurance merger activities; the rival firms in domestic deals have significantly higher ARs than cross-border deals. Those results imply that positive target CARs relate positively to higher rival firm ARs.

This is the only deal-specific variable and we use the target three-day (-1,1) CARs as a measure of target wealth reaction.

4.4.3 Analyst Coverage

Greater analyst coverage increases the amount of information available to investors, enabling a higher degree of transparency of the firm. The increased visibility of a firm would attract greater attention from investors and may be more frequently traded upon. We expect the number of analysts following the firm to be positively related to the firm's abnormal returns.

4.4.4 Index Membership

Major global indices are widely popular among both sophisticated and unsophisticated investors. We proxy the stock listed on a global index with the MSCI membership dummy variable and observe whether being listed on a major index, such as the MSCI index, affects the rivals' return performance during the deal announcement period.

4.4.5 Predictability of the Firm's Performance

The predictability of firm performance can be measured looking at the firms' return volatility, operating income volatility and operating cash flow volatility. Volatility may suggest that the firm is frequently traded upon. It is interesting to observe how the stock return volatility of a rival affects its abnormal performance around the deal announcement period. In addition, we also include volatility of the firms' operating income or cash flow, respectively, as control variable and expect to observe investor's preference for a higher degree of certainty in the a firm's income and cash flows.

4.4.6 Other Firm Characteristics

We include a number of variables that describe the basic characteristics of a firm. The market-to-book hypothesis of Palepu (1986) suggests that undervalued firms with a high book-to-market ratio have a high likelihood of becoming targets themselves. The age of a firm highlights to us how the amount of publicly available information on a firm affects the firm's abnormal returns. We postulate that the amount of information available affects the attractiveness of the firm's stock to investors; hence a greater quantity of publicly available information, indicated by greater firm age, would result in larger abnormal returns. A high dividend yield policy tells us that the firm is lacking in growth opportunities. The price-to-earnings ratio also highlights the link between growth potential and a firm's abnormal returns. The price-to-earnings hypothesis states that firms with low price-to-earnings ratios are likely takeover targets. The return-to-equity ratio displays the relation between firm performance and reactions of the firm to the merger announcement. Other basic firm characteristics included in our study includes the debt-to-equity ratio, operating cash flow and the debt-to-total assets ratio.

4.4.7 Multiple Regression Results

Table 4-4 reports cross-sectional regression results. We find five variables are significantly related to rivals' response in the banking industry: log of book-to-market value, log of market capitalisation, numbers of analyst coverage, price to earnings ratio, targets' CARs. In the insurance industry, log of book-to-market value and log of market capitalisation are significantly related to rival insurers' wealth effects. The results imply that significantly positive wealth effects of targets signal to investors that rivals may possibly become next targets. And the significance of wealth creation in rivals is related to the characteristics of under-valuation, smaller size and transparency of information. The results provide evidence for Palepu's (1986) size hypothesis. Undervalued firms have high likelihood to become target. Smaller competitors experience greater abnormal returns and this is consistent with the hypothesis that smaller competitor's likelihood of being acquired has increased during the merger announcement.

4.5 Conclusion

Table 4-4 Determinants of rival firms wealth effects

Independent variable	Pred. Sign	Banking			Insurance		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Constant		0.2705	0.2415	0.2708	-0.3307	0.9389	-0.0207
		1.76*	1.64	1.74*	-0.35	1.91*	-0.02
bm	+	0.1217	0.1220	0.1294	0.6897	0.0500	0.4957
		2.97**	3.59**	3.20**	3.68**	0.49	3.21**
firmsize	-	-0.0223	-0.0212	-0.0203	0.0306	-0.0693	0.0200
		-1.69*	-1.61	-1.50	0.44	-1.89*	0.30
recom	+	0.0133	0.0130	0.0133	-0.0128		-0.0089
		3.35**	3.27**	3.32**	-0.78		-0.58
pe	-	-0.0012	-0.0012	-0.0012	0.0047		-0.0005
		-2.38**	-2.50**	-2.52**	0.76		-0.09
car_tgt	+	0.4122	0.4074	0.4175	0.4308	-0.0470	0.4101
		4.63**	4.64**	4.69**	1.14	-0.26	1.11
age	+	0.0002	0.0002	0.0003	0.0021		0.0017
		1.13	0.92	1.28	0.93		0.78
dy	-	0.0103	0.0121		-0.0582		-0.0506
		1.13	1.37		-1.08		-1.07
de	-	0.0002	0.0000		-0.0043	0.0000	-0.0062
		0.71	0.07		-0.69	-0.06	-1.37
roe	-	-0.0010		-0.0009	0.0142		
		-0.32		-0.31	1.58		
da	-	-0.3094		-0.0424	-0.7499		
		-0.80		-0.30	-0.27		
ocf	-	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
		-0.15	-0.17	-0.18	0.69	0.69	1.03
msci	+	-0.0693	-0.0728	-0.0671	0.1499	0.1211	0.1636
		-1.10	-1.15	-1.06	0.57	1.01	0.61
opinc_stddev	-	0.0000	0.0000	0.0000			
		-0.18	-0.19	-0.19			
Observations		102015	104013	102013	2517	14854	2584
Adjusted R2		0.0010	0.0009	0.0010	0.0048	0.0005	0.0037

***, **, * indicates significance at 1%, 5% and 10% level

This chapter provides evidence of intra-industry effects arising from acquisitions in the banking and insurance industries, and analyses the determinants of these effects. We report that bidders experience a significant decrease in wealth, and both targets and rivals earn significantly positive cumulative abnormal returns. The results are consistent with the hypothesis that investors consider that merger events transmit a signal, indicating that competitors are more likely to become acquisition targets.

We further report that event-specific and firm-specific characteristics are determinants of rivals' valuation effects. The rivals' cumulative abnormal returns are significantly positively related to targets' cumulative abnormal returns, and negatively related to rivals' firm size. Analyst coverage and price-to-earnings ratio are also determinant factors for banking rivals, but not significant for insurance rivals.

Our results support that the market penalises the bidder because the manger overbid the target. The overall results imply that consolidation in the banking and insurance industry does not lead to stronger and more efficient individual financial institutions. The increase in wealth arising from M&A activities reflects acquirers over-bidding targets, and investors revaluing rivals according to the bidding premium and rivals' firm characteristics. The implications provide important references to financial authorities when they are making regulatory policy.

CHAPTER 5

LEARNING BY OBSERVING – EVIDENCE FROM INSURANCE FIRM M&As

5.1 Introduction

Technology has advanced, and deregulation and climate change have brought tremendous uncertainties to managers and investors in the global insurance industry during the last decades. Beginning in the early 1990s, the introduction of Windows, icons, mouse, pull-down menus, network, internet, portal and applications developments have driven advancements in the insurance system which had never happened previously. According to SETLabs Briefings in April 2007, the insurance industry spends over USD 110 billion on IT worldwide. Cummins and Weiss (2009) state that advances in computing and communication technologies assist the progress of data collection and catastrophe modelling, which help risk management and improve market transparency.

Deregulation is another main trend that drives the changes in the global insurance industry. The European Union deregulated financial markets in order to create a single market during the 1990s. The Third Generation Insurance Directive took effect in 1994, allowing an insurance firm to carry on business in any EU country as long as the firm is licensed in one EU country. Coeurdacier et al (2009) report that the European Integration process increased M&A activities among countries during 1985-2004. In the US, the insurance industry has experienced on-going regulatory changes over the past two decades. In 1989, the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) drove towards a complete financial deregulation. The 1999 Gramm-Leach-Bliley Financial Services Modernisation Act (GLB) developed financial holding companies that can provide financial services of numerous types, including banking, insurance and others. The 2002 Public Company Accounting Reform Act (Sarbanes-Oxley) improved corporate governance and restored investor confidence in financial reporting. The 2010 Dodd-Frank Financial Reform and Consumer Protection Act created a new regulatory framework for financial services firms and

authorised the establishment of an oversight council to monitor systemic risk in financial institutions (see Financial Services Fact Book 2010 and Rezaee 2011).

Climate change is causing an accumulation of variations in building construction, transportation, product design and energy production. In his paper "A Global Review of Insurance Industry Response to Climate Change", Mills (2009) argues that "A vanguard of insurers is adapting its business model to the realities of climate change" (pp. 323). Botzen, Bergh and Bouwer (2009) state: "Weather-related catastrophe losses have been significant in the last decade, posing considerable challenges to the insurance industry worldwide. For example in the last decade (1996-2005) the United States experienced the second most damaging hurricane season of the past century in terms of damage that has been normalized for inflation and wealth" (pp. 578). In this changing environment, the number of Mergers and Acquisitions is four times greater than in the 1980s to 1990s in the insurance industry, and such a phenomenon is new to many managers and investors. Thomson Reuters SDC Platinum records 2204 M&As announcements in 1980s, with at least one party to the merger being classified as an insurance company. The number jumps to 8846 in the 1990s and further extends to 9903 in the 2000s.

In a semi-strong efficient market, short-term valuation to a merger can reflect long-term performance of the merged firm. However, in an evolving industry like insurance, market participants may misunderstand available information, particularly when the event is a new phenomenon and appears complex to them. Changes in the industry after mergers bring economy shocks that can divert long-run performance from short-run valuation. In a changing environment, the original response of a semi-strong efficient market can become an inefficient valuation of a long-run forecast. DeLong and DeYoung (2007) develop a set of methodologies and hypotheses to study the learning-by-observing abilities of managers and investors in US banking M&As activities. They provide evidence consistent with the argument that "merging banks, and investors pricing bank mergers, learn by observing spillover information from previous bank mergers". (pp.181)

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Past studies have posed the question whether risk is a consideration in mergers and acquisitions. Amihud (1981) examines "risk reduction as a managerial motive for conglomerate mergers". Stulz (1996) argues that the fundamental goal of corporate risk management is to remove negative aspects and maintain as much as possible of the positive side, which includes the value of a "well-out-of-the-money" option. Risk management creates value for corporations in various ways. Firms using risk management to reduce bankruptcy cost and financial distress cost can create value for shareholders. Firms such as banks and insurance companies, with a high proportion of debt and contingency liabilities on the balance sheet, could experience dramatic declines in cashflows, which can lead to bankruptcy. The process of reorganising the company to reduce the probability of bankruptcy can be costly. A low cost and effective risk management program can erase that cost therefore enhancing firm value. Furthermore, a higher probability of bankruptcy and financial distress can lead to higher compensation for various stakeholders, such as shareholders wanting higher returns, employees wanting higher salaries, suppliers wanting higher prices, and so on. All these can result in lower firm values. Risk management plays a role in protecting stakeholders and creating value for the firm. Effective risk management can reduce volatility of taxable income and reduce tax payable, which can preserve firm value. Without implementing other risk management measures, the volatility of cashflow of two merged firms should be lower than that of either of the pre-merger firms, given that the correlation between the two firms' cashflows is not perfect. M&A activities can reduce risk in price volatility and demand unpredictability. Bank mergers improve deposit inflows and matching loan demands (Hughes et al. 1996).

Hankins (2009) argues that risk management is a primary corporate decision and reports that acquisitions provide operational hedging to bank holding companies by lowering probable expensive volatility. Garfinkel and Hankins (2011) document that risk management motivations significantly drive M&A activities and waves. The differences in risk and default costs can make financial synergies from mergers negative (Leland 2007). Our study builds on the previous literature by examining whether managers successfully achieve risk management motivation in M&A activities, and further, whether managers and investors learn from previous M&A activities with respect to risk management.

Building on the DeLong and DeYoung (2007) framework, we test the learning-by-observing hypothesis with a global insurance Mergers and Acquisitions dataset on two aspects: the change in long-term performance and change in long-term risk profile. Like banks, insurance firms are important components of the financial services industry and have experienced deregulation in the last two decades. However, there are some major differences between insurance and banking. Bell and Keller (2009) argue that the failure of an insurer and the failure of a bank affect the economic and financial system fundamentally differently. Unlike a bank, an insurer cannot be "too big" or "too interconnected" to fail. Insurers of Europe of CEA (2010) lists fundamental differences between banks and insurers: risk profiles, roles in the economy, systemic relevance. It also lists the differences in business models: "scope of business, funding, balance sheet structure, liquidity risk, risk ownership and transparency, interconnectivity, business volatility, asset-liability management (ALM) and investment management". Our study provides evidence for the insurance industry with an international scope, adding to DeLong and DeYoung (2007). The study also provides evidence from the risk management perspective, in addition to the financial performance effects in M&A activities. Building on Harford (2005), Garfinkel and Hankins (2011), we provide evidence that rises in cash flow volatility inspire company vertical integrations in order to reduce the cost of uncertainties and lead to a wave of merger activities. Our study tests whether mergers result in better risk management and whether investors can identify mergers that reduce risk (or reduce the increase rate of risk).

The remainder of the chapter is organised as follows. Section 5.2 states the hypothesis. Section 5.3 describes the data. Sections 5.4, 55 and 5.6 demonstrate the measurements of market valuation, financial performance changes, and change in risk profiles after merger. Section 5.7 explains the regression framework. Section 5.8, 5.9, 5.10 and 5.11 report the regression results. Section 5.12 concludes.

5.2 Hypothesis

Similar to DeLong and DeYoung (2007), we hypothesise that insurance firms have learned to improve financial performance in a changing environment after financial industry deregulation by observing recent insurance firm mergers. We propose that a merger

announcement following other heavy M&A activities is more likely to create value in the insurance industry. We hypothesise that investors have learned to find value-creation insurance firm mergers as well. We propose that investors can price mergers more accurately after a heavy number of M&As in the insurance industry. Garfinkel and Hankins (2011) prove that risk management considerations drive M&A activity and merger waves. We pose the question whether insurance firms successfully improve risk management after mergers, as expected. We further hypothesise that insurance firms have learned to improve risk management by observing recent mergers in the industry. We propose that a merger announcement following a heavy number of M&A activities is more likely to reduce risk. We also hypothesise that the stock market is able to identify insurance firm mergers that lead to risk reduction.

Hypothesis 1: Insurance firm mergers improve the financial performance of the merged firms in the long term.

Hypothesis 2: Insurance firm mergers reduce risk in the long run of the merged firms.

We test H1 and H2 to fill the gap in the previous literature on the study of insurance M&As . Empirical evidence on bank mergers does not support H1 (DeLong and DeYoung (2007)). The change of financial performance and risk variables obtained in H1 and H2 will be used in the following hypothesis. We test two "insurance firm learning-by-observing" hypotheses: H3 for change of financial performance and H4 for change of risk.

Hypothesis 3: The more merger activities there have been in the recent past, the more likely insurance firms are to improve long-term financial performance in the merged firm.

Hypothesis 4: The more merger activities there have been in the recent past, the more likely insurance firms are to reduce risks in the long-term in the merged firm.

H3 and H4 propose that insurance firm managers observe recent mergers and, learning from the information released, they are able to repeat the success and avoid mistakes in recent mergers.

Regardless whether recent mergers create value and reduce risk or not, we expect investors to differentiate better performing mergers from the others in an efficient market. Hypothesis 5 and 6 test how precisely investors can price insurance firm mergers; this is termed the "efficient markets" hypothesis, following DeLong and DeYoung (2007).

Hypothesis 5: The share market is able to differentiate mergers that create value from others when they are announced.

Hypothesis 6: The share market is able to differentiate mergers that reduce risk from others when they are announced.

Hypothesis 7: The more merger activities there have been in the recent past, the more likely it is that the stock market is able to identify value-enhancing insurance mergers.

Hypothesis 8: The more merger activities in the recent past, the more likely the stock market is able to identify risk reduction insurance mergers.

H7 and H8, termed as "market learning-by-observing" in DeLong and DeYoung (2007), imply that the share market is able to learn from post-merger financial performance and risk management in recent mergers and value a new merger more accurately upon its announcement. H6 is consistent with semi-strong market efficiency: private information released from past mergers, combined with public information, improves value in a new merger.

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5.3 Data

In the Thomson Financial Securities Data database, there are 160 completed transactions where two public insurance companies merged between 1990 and 2007. We only consider the deals where a bidder with minority or no interest in the target acquires controlling ownership after the acquisition. In particular, before the merger, the acquirer owns less than 20 percent of the target, and after the merger the acquirer owns more than 50 percent of the target. We consider those firms with five years financial reports before and after the merger completed. Five years financial reports are needed to measure long term financial performance and risk managements. Share price of both bidder and target with liquid trading, financial index data, interest rate and currency exchange rate data must also be available. There are 76 transactions in our base sample. The sample size is comparable to other insurance firm M&A studies: 52 deals in Cummins and Weiss (2004), 54 deals in Cybo-Ottone and Murgia (2000), and 61 acquirers and 22 targets in Akhigbe and Madura (2001). Share price data, index data, interest rate and foreign exchange rate data are sourced from Thomson Reuters Datastream. Financial report information is sourced from Worldscope by Thomson Reuters.

Table 5-1 displays descriptive statistics for our M&A dataset. Accounting data for the insurance firms is from the Worldscope database in Thomson Reuters Datastream. Our sample start with 1 merger in year 1990, then the number of mergers peak in year 1998-1999, there are about 5-6 deals in most of the years in the year 2000s. The mean asset size of both acquirers and targets generally increase over years. The sample demonstrates the increase in M&A activities during the deregulation in the finance industry. The number of domestic mergers is about twice more than that of cross-border deals. The average asset size of acquirers is more than four times as big as that of targets. The United States have the largest share in M&A activities around the globe.

5.4 Measuring Stock Market Valuation

For each of the 76 merger events, we measure the stock market valuation using the following two factor index model:

$$\hat{R}_{j,t} = \alpha_j + \beta_{\text{world},j} RI_{\text{world},t} + \beta_{\text{home},j} RI^*_{\text{home},t} + \mu_{j,t}, \tag{5.1}$$

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Table 5-1 Descriptive Statistics for Global Insurance Company M&As, 1990-2007

The sample consists of 76 mergers where both the acquirer and target are insurance companies. The bidder have not less than 20% ownership of the acquired firm after the merger, and the bidder is a public which daily return data are available. The merger is announced between 1990 and 2007. Asset is in million (USD).

Panel A: Number of mergers per year

Year	Entire sample	Domestic	Cross-border	Mean Assets of Bidder	Mean Assets of Target
1990	1	0	1	$1.90	$1.10
1991	1	1	0	$4.90	$1.50
1994	3	2	1	$20.80	$2.40
1995	3	2	1	$17.20	$0.50
1996	4	3	1	$21.20	$14.40
1997	6	5	1	$3.30	$1.70
1998	12	8	4	$1.80	$0.80
1999	10	8	2	$8.10	$0.90
2000	9	6	3	$13.70	$2.10
2001	4	4	0	$4.90	$1.30
2003	3	3	0	$7.10	$7.10
2004	4	4	0	$1.70	$0.20
2005	5	5	0	$33.00	$2.00
2006	5	4	1	$19.80	$1.50
2007	6	2	4	$22.20	$0.90
1990-2007	76	57	19	$12.10	$2.60

Panel B: National identities

Country	Bidder	Target
Australia	2	2
Belgium	1	
Canada	3	1
France	4	2
Germany	4	1
Greece	1	1
Italy	4	5
Japan	2	2
Netherlands	2	
Spain	1	
Switzerland	1	1
United Kingdom	8	7
United States	43	54
Total	76	76

Data sources: Thomson Financial Securities Data Worldwide Mergers, Acquisitions & Alliances Databases

$R_{j,t}$ is the daily return of insurance firm j on day t. $RI_{world,t}$ is the daily return of Datastream world financial index, $RI^{*}_{home,t}$ is the daily return of Datastream financial index of the acquirer or target home country. $RI^{*}_{home,t}$ is orthogonalised to $RI_{world,t}$ The model is estimated over

days -260 to -10 before the merger announcement. Acquirer, target and the hypothetic combined company returns are measure respectively with equation (5.1). The combined firm return is calculated as below:

$$R_{i,t}^C = \ln[(MV_{j,t}^A + MV_{j,t}^T * FX_{j,t}^A / FX_{j,t}^T) / (MV_{j,t-1}^A + MV_{j,t-1}^T * FX_{j,t-1}^A / FX_{j,t-1}^T)] \tag{5.2}$$

Where $R_{i,t}^C$ is the day t market return on a hypothetical combined firm consisting of the acquirer and target insurance firms, ln is the natural log operator, $MV_{j,t}^A$ and $MV_{j,t}^T$ are the day t market values of acquirer and target, and $FX_{j,t}^A$ and $FX_{j,t}^T$ are the day t foreign exchange rate of the acquiring and target home countries respectively. We also use alternatives model to estimate stock market valuation: we use four one factor index models with world financial index, home country financial index, world market index and home country market index respectively; we also use three factors index model, taking into consideration of interest rate effects on top of the two factors in equation (5.1). The results are similar to those of equation (5.1) and are not reported here.

Then the cumulative abnormal return for stock j, CAR_j can be written as:

$$CAR_j = \sum_{t=-n}^{+m} [R_{j,t} - \hat{R}_{j,t}] \tag{5.3}$$

Where $R_{j,t}$ is the actual stock return and $\hat{R}_{j,t}$ is the estimated stock return. This chapter then calculates the daily average cumulative abnormal returns (CARs) over some standard short term windows surrounding the announcement using the standard procedure. We calculate the average abnormal returns for the entire sample and sub-samples according to whether the transactions are domestic or cross-border. The results are reported in Table 5-2.

The combined firms experience positive CARs ranging from 0.55% to 2.5% in all event windows, and they are statistically significant at the 5% or 10% level for the cross-border deals. The acquirers' CARs are all negative ranging from -0.27% to -2.46%, and statistically significant at the 5% or 10% level for the whole sample and cross-border transactions. All targets experience positive CARs significant at 5% level, ranging from 10.83% to 13.64%. The finds are consistent with past merger literature that mergers do not generally create

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value; rather the short-term valuation effects reflect a shift of wealth from acquirer to target. To test whether market reactions to insurance firm mergers are trending over the course of 1990-2007, we regress the CARs on announcement date and obtain the slope coefficient. The slope coefficients are not significantly different from zeros for combined firms, bidder firms and target firms. This proves market does not favour M&As in some certain years over our observation period. Figure 1 shows the scatter plot of combined firm CARs and the solid line of slope coefficient.

Table 5-2 CARs surrounding Merger Announcements

This table reports average cumulative abnormal returns (CARs) to shareholders surrounding merger announcement. We report means alone with t-statistics. The sample consists of 76 M&As between 1990-2007.

Panel A: Combined - Cumulative abnormal return surrounding the announcement date

Event Window	All sample		Domestic		Cross-board	
	CAR (%)	*t-statistics*	CAR (%)	*t-statistics*	CAR (%)	*t-statistics*
Day -1 to 1	0.55	*1.10*	0.06	*0.11*	2.09	*2.21***
Day -1 to 2	0.87	*1.51*	0.36	*0.52*	2.50	*2.29***
Day -1 to 3	0.92	*1.43*	0.52	*0.68*	2.21	*1.81**
Day 0 to 1	0.61	*1.49*	0.25	*0.52*	1.75	*2.27***
Day 0 to 2	0.93	*1.86**	0.54	*0.92*	2.17	*2.29***

Panel B: Acquiror - Cumulative abnormal return surrounding the announcement date

Event Window	All sample		Domestic		Cross-board	
	CAR (%)	*t-statistics*	CAR (%)	*t-statistics*	CAR (%)	*t-statistics*
Day -1 to 1	-0.71	*-1.85**	-0.27	*-0.59*	-2.02	*-2.93***
Day -1 to 2	-0.89	*-2.02***	-0.37	*-0.7*	-2.46	*-3.10***
Day -1 to 3	-1.06	*-2.16***	-0.62	*-1.06*	-2.38	*-2.69***
Day 0 to 1	-0.86	*-2.74***	-0.48	*-1.29*	-1.99	*-3.54***
Day 0 to 2	-1.04	*-2.72***	-0.57	*-1.26*	-2.43	*-3.53***

Panel C: Target - Cumulative abnormal return surrounding the announcement date

Event Window	All sample		Domestic		Cross-board	
	CAR (%)	*t-statistics*	CAR (%)	*t-statistics*	CAR (%)	*t-statistics*
Day -1 to 1	13.30	*27.13***	13.27	*23.15***	13.41	*14.44***
Day -1 to 2	13.36	*23.60***	13.35	*20.18***	13.38	*12.48***
Day -1 to 3	13.29	*21.00***	13.19	*17.82***	13.64	*11.38***
Day 0 to 1	12.11	*30.24***	12.48	*26.66***	10.86	*14.34***
Day 0 to 2	12.16	*24.81***	12.56	*21.91***	10.83	*11.68***

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively
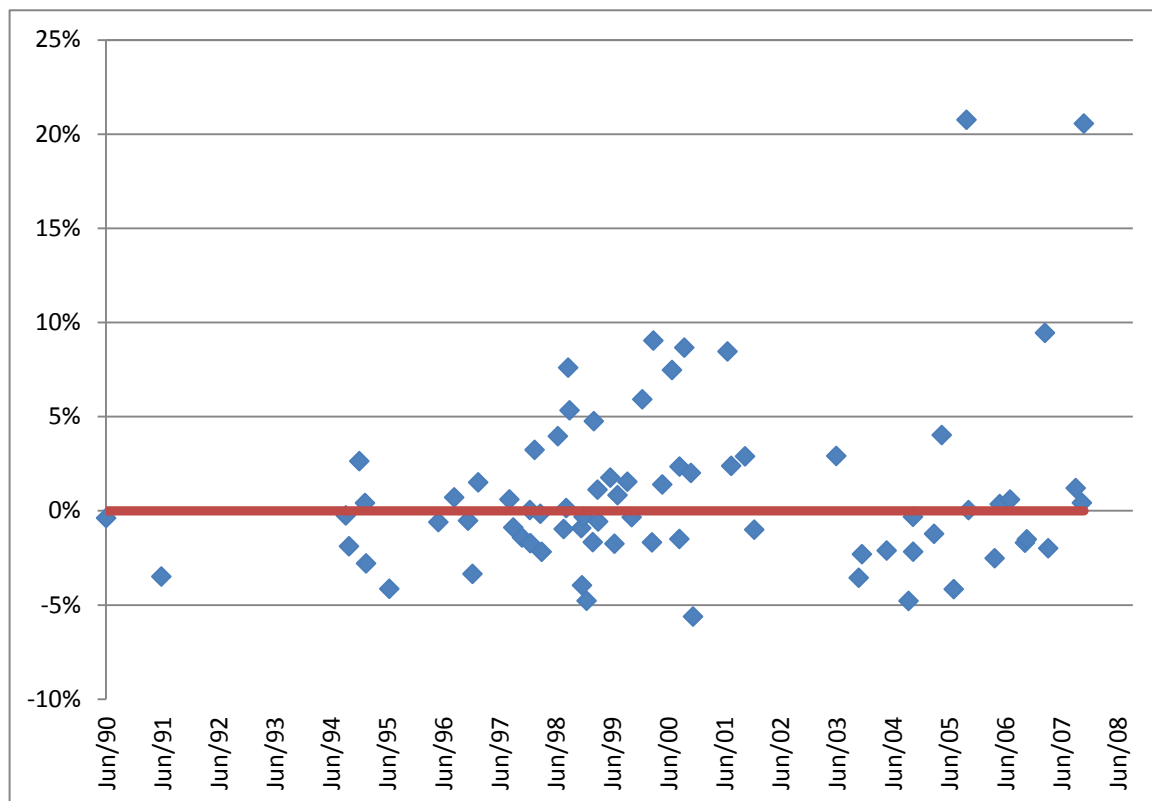
Figure 5.1 Change in Combined Cumulative Abnormal Return. Data for 76 global insurance company M&As announced and completed between 1990-2007. Linear trend time calculated using ordinary least squares.

5.5 Measuring Post-merger Financial Performance

We estimate the financial performance change in the long run: , Δ Post-merger performance of the merging insurance firm in eleven aspects, on financial soundness: Premiums Earned, Interest Expense on Debt, Pre-tax Income, Percentage of Total Debt to Total Capital and Short-term Debt, Percentage of Total Debt to Common Equity, Return on Equity, Cash Flow to Sales Ratio, Pre-tax Margin (Pre-tax income divided by Net Sales or Revenue), Net Margin (Net Income divided by Net Sales or Revenue) and Return on Invested Capital. These are key items for insurance companies in the Worldscope database. Premium Earned represents the portion of total premiums written needed to cover all expenses and benefits, therefore, the smaller the Premium Earned, the better the financial status.

To classify all the financial items: Premium Earned and Interest Expense on debt measure the expense aspect of financial status, the two debt ratios reflect the capital structure, Pre-tax Income, Return on Equity, Cash Flow to Sales Ratio, Pre-tax Margin, Net Margin and Return on Invested Capital are the profitability items and are the measures for financial performance.

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Table 5-3 Change in Long-Term Performance, Average

In the table, we report the difference between pre and post merger long-run financial performance ratios (Δ Post-merger performance) for merger insurance companies. The cells contain means with t-statistics in italic. The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger, and compare it to the actual performance of the merged insurance firm 3 year after the transaction completed. We adjust both the financial performance of both before and after mergers with industry-level performance. That results in the Δ post merger performance. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt − Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100.

Δ Post-merger performance	Full Sample	Domestic	Cross-border
Δ Premiums Earned ($mil)	-17.80	-23.90	-1.26
	-1.59	*-1.57*	*-2.77***
Δ Interest Expense On Debt ($mil)	-0.03	-0.03	-0.02
	*-3.56***	*-2.98***	*-4.34***
Δ Pretax Income ($mil)	-0.66	-0.83	-0.12
	*-1.81**	*-1.74**	*-3.70***
Δ Tot. Debt % Tot. Capital&ST. Debt	24.25	20.14	43.14
	*7.36***	*7.33***	*4.11***
Δ Total Debt % Common Equity	52.08	39.53	88.93
	*4.99***	*4.46***	*2.90***
Δ Return On Equity - Total (%)	15.38	15.06	16.33
	*14.04***	*11.59***	*7.99***
Δ Cash Flow/Sales	15.72	15.96	14.73
	*7.55***	*6.28***	*6.48***
Δ Operating Profit Margin	13.68	15.03	9.46
	*8.46***	*7.35***	*5.75***
Δ Pretax Margin	12.46	13.55	9.06
	*8.62***	*7.27***	*9.03***
Δ Net Margin	9.85	10.73	7.12
	*7.57***	*6.54***	*4.71***
Δ Return On Invested Capital	12.29	12.15	12.72
	*11.58***	*10.21***	*5.41***

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

Past studies report that capital structure is a consideration in acquisitions. Uysal (2010) shows that firms with less debt are more likely to bid for other firms. Harford et al. (2009) examine the relationship between leverage ratio and method of payment in acquisitions. They suggest that it can convey information about growth opportunities, equity overvaluation or agency cost. Kayhan and Titman (2007) report that firms drive their capital structure to target levels

in the long run. Uysal (2010) argues that some mergers can help bidder firms approach their optimal capital structure. We include leverage ratios in our study to check if our results are consistent with general findings. Similar to DeLong and DeYoung (2007), Δ Post-merger performance is normalised by industry average data, and estimates the pre-merger (one year prior) to post-merger (three years after) change in the key financial items of the merging firms. The normalisation largely removes the industry-wide and economy-wide effects arising from other events and macro-factors. We mainly follow the four-step process provided in DeLong and DeYoung (2007) to compute the Δ Post-merger performance. Because we study international M&As, we convert target firm accounting data to the currency of the acquirer firm when they are reported in different currencies:

1. We calculate a pro forma financial statement of a hypothetical firm one year before the merger announcement by combining statements of acquirer and target, and then we calculate key accounting items from the pro forma financial statements.

2. We compute the key accounting items for the merged firm using financial reports three years after the merger has taken effect.

3. We subtract the firm accounting key items from those of the industry average of the acquirer's home country in the same year.

4. The Δ Post-merger performance variable is the difference between post-merger and pre-merger normalised key accounting items. The averages for variables are displayed in Table 5-3.

In table 5-3, it reports that premiums needed to cover expenses and benefits reduce in the entire sample and sub-samples, and it is significant in the cross-border sample. Interest expense on debt reduces significantly while the two leverage ratios increase significantly. This provides evidence of financial synergy creation in the insurance firm M&A activities. One possible explanation of this interesting result is that the merged firm is able to obtain finance with lower costs relative to those of the bidder and target separately before they merge. The significant increase in leverage ratios is consistent with Uysal (2006), who reports under-leveraged companies are more likely to initiate a merger bid. It is also consistent with Harford et al (2009), who argue that merged firms adjust to a target level of capital structure following the acquisition. The results report that pre-tax income significantly

reduces while operating cashflow to net sales ratio, operating profit margin, pre-tax margin and net margin improve significantly.

These results provide evidence that the acquisitions create operational synergies. The merged firms are able to operate more efficiently and reduce their marginal tax rate. Both return on equity and return on invested capital improve significantly, which indicates enhancement of financial performance. This result is not consistent with the results in bank mergers. DeLong and DeYoung (2007) report no significant change in ROE and significant decline in ROA with a sample of 216 US bank mergers.

5.6 Measuring Post-merger Risk

We measure three aspects of post-merger risk change: change of total relative risk (ΔTRR), change of systematic risk ($\Delta \beta$) and change in relative volatilities of key financial items (Δ Volatilities $-$ financial performance).

The methodology in measuring total relative risk and systematic risk are similar to Amehud et al (2002). Total relative risk is the ratio of the varianace of the hypothetical combined firm's returns, calculated from equation (5.2), to the variance of the returns on the world finance index or the acquirer firm's home finance index. For firm j and index k, total relative risk is calculated as

$$TRR_{j,k} = \frac{Var(R_j)}{Var(RI_k)},$$
(5.4)

R_j is the daily return on firm j and the RI_k is the return on the index k, where k = world financial index converted to acquirer's home country currency, home financial index. Pre-merger risk of the hypothetical combined firm is evaluated over the period (-260, -10) days before the merger announcement, and post-merger risk of the merged firm is evaluated over the 250 work days three years (1095 days) after the effective date of the merger. We then calculate the change in the total relative risk, $\Delta TRR_{j,k}$,

$$\Delta TRR_{j,k} = TRR_{j,k}(pre) - TRR_{j,k}(post) \tag{5.5}$$

Table 5-4 Change in Risk, Average

In the table, we report risk management change (Δ Post merger risk management) for merged insurance companies. The cells contain means with t-statistics in italic. The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Total Risk - Relative to World Financial Index is the standard deviation of share price in relative to the World Financial Index. Total Risk - Relative to Home Financial Index is the standard deviation of share price in relative to the Financials Index of the acquirer's home country. Beta Risk - Relative to World Financial Index is the systematic risk of the firm against the World Financial Index. Beta Risk - Relative to Home Financial Index is the systematic risk of the firm against the Financial Index in acquirer's home country. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt – Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100.

Variables	Full Sample	Domestic	Cross-border
ΔTotal Risk Relative to World Financial Index	-6.77	-8.37	-2.06
	*-2.74****	*-2.58****	*-1.21*
ΔTotal Risk Relative to Home Financial Index	-5.03	-6.07	-1.94
	*-3.03****	*-2.89****	*-0.94*
ΔBeta Risk Relative to World Financial Index	0.00	-0.01	0.01
	-0.13	*-0.25*	*0.24*
ΔBeta Risk Relative to Home Financial Index	0.01	0.01	-0.01
	0.17	*0.28*	*-0.21*
Δ Volatility Premiums Earned	-14.01	-19.27	0.19
	-0.66	*-0.66*	*0.36*
Δ Volatility Interest Expense On Debt	2.43	-1.89	13.54
	0.38	*-0.26*	*1.04*
Δ Volatility Pretax Income	-34.96	-93.69	116.75
	-0.29	*-0.58*	*0.98*
Δ Volatility Tot. Debt % Tot. Capital&ST. Debt	-4.32	-5.63	0.03
	-1.61	*-1.65*	*0.08*
Δ Volatility Total Debt % Common Equity	12.91	20.23	-3.19
	1.15	*1.25*	*-1.21*
Δ Volatility Return On Equity - Total (%)	326.57	16.39	1102
	1.05	*1.04*	*1.01*
Δ Volatility Cash Flow/Sales	-64.11	-27.75	-185.30
	-1.56	*-2.25****	*-1.05*
Δ Volatility Operating Profit Margin	1.35	4.66	-6.92
	0.33	*0.96*	*-0.97*
Δ Volatility Pretax Margin	-34.16	-51.61	10.91
	-0.91	*-0.99*	*1.37*
Δ Volatility Net Margin	433.72	-4.01	1564.50
	0.99	*-0.91*	*1.00*
Δ Volatility Return On Invested Capital	4179.10	5791.90	146.97
	1.04	*1.03*	*1.08*

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

The systematic risk is measured by the firm's beta coefficient based on a two factor model involving two indices: the world financial index and the acquirer's home country financial index. Similar to Amihud et al (2002), the model for firm j on day t can be written as:

$$
\begin{aligned}
R_{j,t} = {} & \alpha_j + \alpha_{1j}D_t + \beta_{\text{world},j}RI_{\text{world},t} + \gamma_{\text{world},j}RI_{\text{world},t}D_t \\
& + \beta_{\text{home},j}RI^*_{\text{home},t} + \gamma_{\text{home},j}RI^*_{\text{home},t}D_t + \mu_{j,t},
\end{aligned} \tag{5.6}
$$

where R_j is the daily return of hypothetical combined firm for pre-merger period, calculated by equation (5.2), and it is the daily stock return of the merged firm in the post-merger period. $RI^*_{\text{home},t}$ is the acquirer's home country financial index return after removing the effect of the world financial index converted to the acquirer's home country currency, $RI_{\text{world},t}$. $RI^*_{\text{home},t}$ is the residual obtained by regression of home financial index returns, $RI_{\text{home},t}$, on the world financial index return in home country currency terms, $RI_{\text{world},t}$. D_t is a dummy variable, $D_t = 0$ for pre-merger period, days -260 to day -10 before the merger announcement, and $D_t = 1$ for post-merger period, the 250 working days three years (1095 days) after the consummation of the merger. Change in systematic risk can be written as below:

$$
\Delta\beta_{kj} = \beta_{kj}(pre) - \beta_{kj}(post) = \gamma_{kj} \tag{5.7}
$$

The third measure of change in risk is the change of relative volatilities in a list of key financial items described in the change of financial performance section. We calcualte the standard deviation of financial items in the five years period one year before the merger announcement and three years after merger completion; the difference between the two is the change of relative volatility variables. Both pre-merger volatility and post-merger volatilty are normalised by deducting the firm volatility from the industry average volatiltiy of the same period, in order to adjust any industry-wide volatilty caused by economic or regulation factors. We need five years of annual reports one year before the merger announcement and five years of annual reports three years after the merger completion. We can only include

mergers completed between 1990 and 2002. Data are available for 43 transactions in the variable calculation.

We calculate change in risk for the full sample and two sub-samples, depending on whether the transactions are domestic or cross-border. Table IV reports that total relative risk (TRR) declines in full samples and the two sub-samples, the reduction being significant at 5% level in both full sample and domestic sample. No significant change in sytematic risk is reported. Amehud et al (2002) report significant increase in systematic risk but no significant change in total risk one year after merger in their bank study. This is consistent with the argument that it will take managers three full years to finish the merger integration and improve risk management. After fully incorporating the target firm to the acquirer, the merged firms sucessfully reduce their non-systematic risk while maintaining their systematic risk at the same level. Volatility of premium earned, pre-tax income, cashflow to sales ratio, and pre-tax margin reduce after merger for the full sample but are not statistically significant; volatility of cashflow to sales ratio declines significantly at 5% level for the domestic sample. Minton and Schrand (1999) report that cash flow volatility increases both the likelihood and cost of accessing the capital market. Garfinkel and Hankins (2011) show that "individual firms respond to cashflow uncertainty by vertically integrating…". Our results support the view that merged firms sucessfully reduce cash flow uncertainty after merger. Volatilities in return on equity and return on invested capital increase in the full sample and both sub-samples.

5.7 Regression Frameworks

We use mutivariate regression to test the remaining hypothesis. We test first the hypothesis of "insurance firm learning by observing", H3 (change of post-merger financial performance) using equation (5.8), and H4 (Change in Risk Profile) using equation (5.9), adapted from DeLong and DeYoung (2007) .

$$\triangle \text{Postmerger Performance}_j = \\ a + b \cdot LBYO_j + c \cdot time_j + d \cdot LBYO_j \cdot time_j + f \cdot controls_j + e_j, \tag{5.8}$$

$$\triangle \text{Postmerger Risk}_j = a + b \cdot LBYO_j + c \cdot time_j + d \cdot LBYO_j \cdot time_j + f \cdot controls_j + e_j, \tag{5.9}$$

where the dependent variable $\triangle$Postmerger Performance is the change in key financial ratios and measures (e.g. return on equity, return on invested capital, net margin), adjusted by industry average, for merger j during the three years after merger. LBYO and time are the main explanatory variables. The vector of control variables is described below. Residual term e represents the deviations of the $\triangle$Postmerger Performance from their means, and is assumed to be normally distributed with mean zero and un-related to the right-hand-side variables.

Similar to DeLong and DeYoung (2007), we use variable LBYO as our proxy for learning by observing. This is the information released from past M&A activities from which both managers and investors can learn. We calculate LBYO as the total number of completed M&As between public or private insurance firms in the world during certain years before a merger annoucement in our sample. While LBYO(3) measures the three-year window (1095 days) and represents our base definition of learning by observing, LBYO(1), LBYO(2), LBYO(4), LBYO(5), LBYO(6) and LBYO(7) are measured in one, two four, five, six and seven years windows respectively. In addition, we compose a weighted LBYO with more recent years receiving heavier weighting according to a logistic distribution. The weighted LBYO includes the number of mergers in the three-year window. Weighted LBYO takes into account the probability that more recent information is more relevant and older information is more easily forgotten. Figure 2 plots LBYO(1), LBYO(3) and weighted LBYO against time for each of the 76 mergers in our sample. It illustrates that the variable has high and low points, and is not in monotonic sequence over time.

We include the variable time to isolate the effect of passage of time to specific effects brought from the information released in M&A activities. The effect in passage of time can come from revolutions in technology, regulation changes etc. The time variable equals 1 for 1990, 2 for 1991, etc. Because the time variable, assumed to be the effect of passage of time, is linear, we also include three sets of non-linear measures of the effects: computers per capita, mobile phones per 100 inhabitants and internet users per capita. These variables are based on data from the United States sourced from http://data.un.org. We use the data of

the US because the US not only has been the largest economy in the world, but also its datasets are complete.

H3 (insurance firm learning by observing to improve financial performance) forecasts LBYO relates to ΔPost-merger performance positively: the more information spillover from recent mergers, the better the merged firm tends to perform after merger. H4 (insurance firm learning by observing to reduce risk profile) predicts a negative relationship between LBYO and ΔRisk Profile, that is, a merger will tend to reduce a merged firm's risk profile more as recent mergers spillover more information. The interaction term LBYO*time considers the chance that learning from information overflow may increase over time, or that the gains from information spillover may weaken over time. Any combination of b>0 and any sign for d in equation (5.8), and any combination of b<0 and any sign for d in equation (5.9) would be consistent with insurance firm learning by observing results.

Equations (5.10) and (5.11) provide our tests of H5 and H6 (efficient markets), and H7 and H8 (market learning by observing) of financial performance and change in risk profile respectively:

$$
\begin{aligned}
CAR_j = a &+ b \cdot {\scriptstyle\triangle}\text{Postmerger Performance}_j + c \cdot LBYO_j + \\
&d \cdot {\scriptstyle\triangle}\text{Postmerger Performance}_j \cdot LBYO_j + f \cdot controls_j + e_j,
\end{aligned}
\tag{5.10}
$$

$$
\begin{aligned}
CAR_j = a &+ b \cdot {\scriptstyle\triangle}\text{Postmerger Risk}_j + c \cdot LBYO_j + \\
&d \cdot {\scriptstyle\triangle}\text{Postmerger Risk}_j \cdot LBYO_j + f \cdot controls_j + e_j,
\end{aligned}
\tag{5.11}
$$

where the dependent variable is the cumulative abnormal return (CAR) of the combined firms around the merger annoucement. Although we observe CAR before we can observe the post-merger performance, the CAR measures investors' valuation of the merger based on their forecast of financial performance and risk changes after the merger. ΔPostmerger Performance and ΔPostmerger Risk are proxies for investors' understanding when the merger

is announced. Equations (5.10) and (5.11) reflect that investors' knowledge of the mergers contributes to their valuation, measured by CAR.

In an efficient market, we may predict a positive relationship between CAR and ΔPost-merger performance, and a negative relationship between CAR and ΔPost-merger Risk. Investors do not need to learn from recent other mergers, because they have obtained all information about the current merger, assuming a strong efficient market. We can expect b>0, c=0 and d=0 in equation (5.10), and b<0, c=0 and d=0 in equation (5.11), which indicates that LBYO does not play a role in investors' valuation.

In a semi-strong efficient market, investors do not obtain full information about the current merger, and they will be better off in pricing the merger if they can learn from recent mergers by observing. We expect a positive relationship between CAR and LBYO (c≥0), because investors are willing to pay more when the increase in information reduces uncertainty. If investors learn from the recent mergers by observing, we may predict a positive relationship between CAR and the interaction term in equations (5.10) and (5.11), which indicate that the increment in the information overflow exaggerates the relationship between CAR and changes in post-merger performance and risk profile. We would expect d > 0 because investors do a better job in valuation when the information spillover from recent mergers increases. In Equation (5.11), we expect b≤0 because investors increase their valuation if they learn the merger result in risk reduction. In equation (5.10), assuming changes in risk are the same, we would expect a positive relationship between CAR and ΔPost merger Performance(b≥0); however, if the merger leads to a dramatic increase in risk, investors can still price down a merger even they expect there to be improvement in financial performance after merger, and we will observe b≤0.

A vector of variables is used in the regression analysis to control for the effects that are not related to our main hypothesis. These control variables are as follows.

- Activity focus is the correlation of the pre-merger stock returns for the acquiring and target insurance firms. When bidder and target have similar business strategies, the

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merged firm is likely to have better performance (DeLong (2003), Altunbas and Ibanez(2004)). We expect volatility of financial performance reduces less for those mergers with similar business strategies between bidder and target, because the financial performance of the two firms might be already highly correlated before merger.

- Country M&As are the proportion of all insurance firms that were merged in the acquired insurer's home country during the merger year. The smaller the percentage, the greater the regulatory barrier for mergers. We expect merged firms to have greater performance gains in those countries with fewer regulatory barriers. Risk might increase more or decrease less in a country with more regulatory barriers.

- Equal Size ranges from near 0 to 1, which indicates relative size of target and acquiring firms. Equal size = 1-[ABS(acquirer assets-target assets)/MAX(acquirer assets, target assets)]. We expect less gain in performance for the merged firm when the acquirer and target are similar in asset size. We expect risk to increase more or reduce less if the bidder and target have similar asset size.

- Change of Herf. is the change in the Herfindahl index of the insurance industry weighted by revenue in the target home country one year before and one year after merger. It measures the change in competitiveness in the insurance industry of the country around the merger announcement. We expect risk to increase more or decline less in a more competitive environment.

- Hot market is equal to average cumulative abnormal return of public target insurance firms during the one year period before every merger announcement day in the sample in the target home country. During the "hot market" (Rosen (2006)) period, investors give particularly high valuation to mergers, and post-merger performance can differ. We expect risk to reduce less or increase more in a "hot market" situation.

- Acquirer size is the natural log of acquirer's total assets in US dollars before merger. Megamerger is a dummy variable equal to 1 if both acquiring and target firms' total assets are more than 1 billion USD, 0 otherwise. Large acquirers may experience smaller change in post-merger performance because there might not be much improvement to economy of scale resulting from the merger. Risk should increase less or decrease more for a larger acquirer.

- Postmerger growth is insurer's asset growth rate over the three years post-merger, and it is normalised with the industry growth rate. A bidder experiencing rapid growth after merger might focus on growth management, and merger integration may not be implemented to its best effect, therefore post-merger performance is affected. We expect risk to increase more or reduce less for firms experiencing rapid post-merger growth.

- Payment is a dummy variable if the transaction is paid by cash only, 0 otherwise. Whether the merger is fully paid by cash may influence post-merger performance. Mergers are expected to enjoy more risk reduction when the acquirer pays the transaction totally in cash.

- Target equity-to-assets is a book value ratio for the acquired insurance firm prior to the merger. When the target has a very low equity-to-assets ratio, the merged firm is expected to have worse post-merger performance. We expect risk to increase more or decline less when the target has a low equity-to-asset ratio.

- Cross-border deal is a dummy variable if the acquirer and target are based in different countries, 0 otherwise. This variable is used in the full sample to capture whether post-merger performance of cross-border deals differs from that of domestic deals. We expect cross-border deals to experience greater increase in risk or less reduction in risk.

- GDP growth is the acquirer's home country's gross domestic growth rate of the year of the merger announcement. GDP growth represents the business cycle of the country, which may affect post-merger performance. We expect mergers to experience greater risk increase or less risk reduction when the acquirer is in a country experiencing high GDP growth.

- Learning-by-doing (LBYD) is the number of other insurance mergers made during the previous 1095 days (three years) by the acquiring firm. This variable captures the effects of an acquirer's learning from its experience in actively acquiring other firms. We expect firms to reduce more or increase less in risk when the acquirers have been involved in M&As. DeYoung (1997) reports that an acquirer gains in cost efficiency after merger if it has had recent acquisitions.

We provide summary statistics in Table V for all the variables used in our regression analysis.
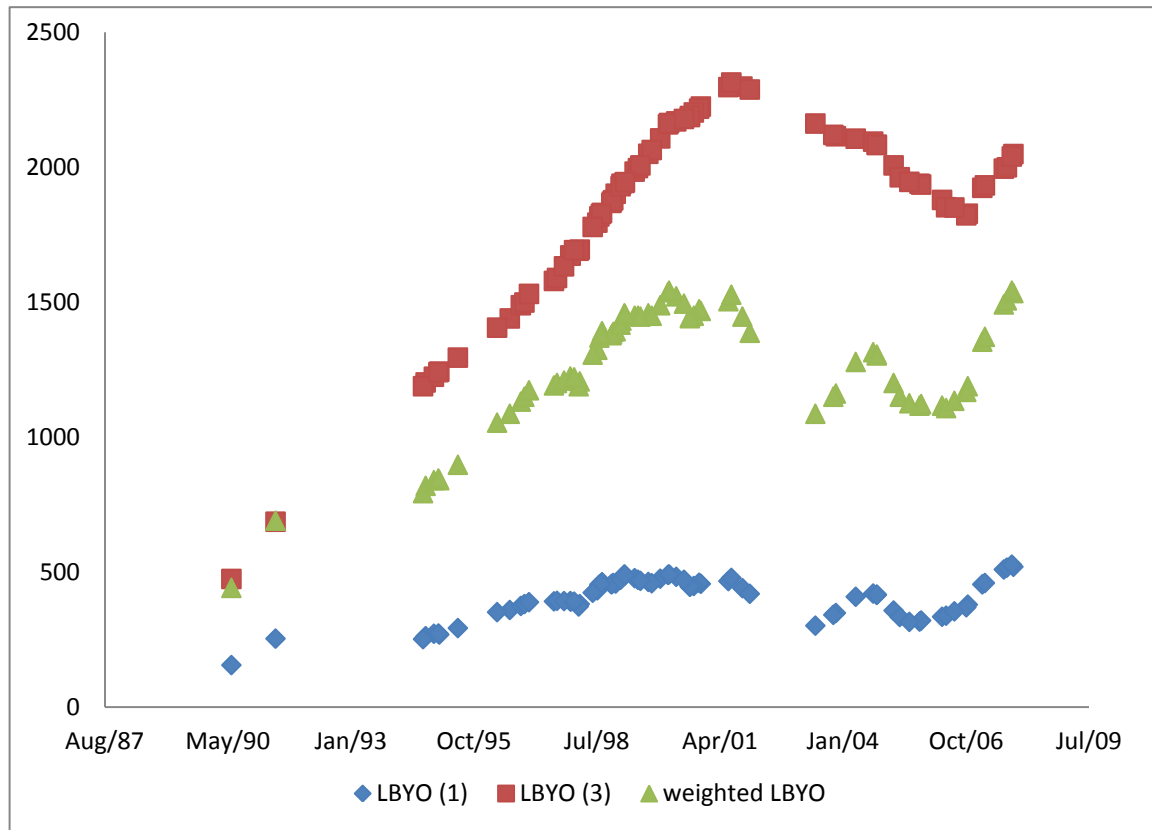

Figure 5.2 Learning-by-Observing Variable Plotted against time. LBYO (1) is the number of insurance firm mergers that occurred in the year preceding a merger. LBYO (3) is the number of insurance firm mergers that occurred in the 3 years preceding a merger; Weighted LBYO is the number of insurance firm mergers that occurred in the 3 years preceding a merger with more weight placed on the more recent mergers based on a logistic distribution.

5.8 Results for Insurance Firm Learning by Observing – Financial Performance

We display OLS regression results of equation (5.8). The estimated coefficients on LBYO (3) and LBYO (3)*TIME test provide the test of H3, insurance firm learning by observing to improve financial performance after merger.

Test results of six regressions are consistent with firms' learning by observing: Δ Premiums Earned, Δ Interest Expense On Debt, Δ Cash Flow/Sales, Δ Operating Profit Margin, Δ Pre-tax Margin and Δ Net Margin. The last three are statistically significant at 5% or 10% level. Estimated coefficient on Δ Return On Equity and Δ Return On Invested Capital are not statistically significant. This is not consistent with DeLong and DeYoung (2007) who report that the coefficient on LBYO (3) is statistically positive and on LBYO (3)*time is negatively significant in the Δ ROE and Δ ROA.

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Table 5-5 Summary Statistics for Regression Variables

The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate the financial performance, then compare it to the actual performance of the merged insurance firm 3 year after the transaction completed. We adjust both the financial performance of both before and after mergers with industry-level performance. That results in the Δ post merger performance. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change. Total Risk - Relative to World Financial Index is the standard deviation of share price in relative to the World Financial Index. Total Risk - Relative to Home Financial Index is the standard deviation of share price in relative to the Financials Index of the acquirer's home country. Beta Risk - Relative to World Financial Index is the systematic risk of the firm against the World Financial Index. Beta Risk - Relative to Home Financial Index is the systematic risk of the firm against the Financial Index in acquirer's home country. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)... LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt – Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. CAR is the cumulative abnormal return for combined firms upon merger announcement. LBYO(x) measures the number of insurance M&As that happen during x years before announcement. Weighted LBYO use a logistic distribution to make mergers in closer years having more significant factor.Time measures the number of years starting at the first year of sample period, i.e. time = 1 for year 1990 M&A announcements, time = 2 for year 1991 announcements and so on. Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Activity focus is the correlation of the pre-merger stock returns for the acquiring and target insurance firms. Country M&As is the portion of all insurance firms that were merged in the acquired insurer's home country during the merger year. Equal Size ranges from near 0 to 1 which indicates relative size between target and acquiring firms. Change of Herf is the change in the Herfindahl index of the insurance industry weighted by revenue in the target home country one year before and after merger. Hot market is equal to average cumulative abnormal return of public target insurance firms during the one year period before every merger announcement day in the sample in the target home country. Acquirer size is the natural log of acquirer's total assets in US dollars before merger. Megamerger is a dummy variable equals to 1 if both acquiring and target firms' total assets are more than 1 billion USD, 0 otherwise. Postmerger growth is insurer's asset growth rate over the 3 years post-merger, and it is normalised with the industry growth rate. Payment is a dummy variable if the transaction is paid by cash only, 0 otherwise. Target equity-to-assets is a book value ratio for the acquired insurance firm prior to the merger. Cross-border deal is a dummy variable if the acquirer and target are based in different countries, 0 otherwise. GDP growth is the acquirer's home country's gross domestic growth rate of the year of merger announcement. Learning-by-doing (LBYD) is the number of other insurance mergers made during the previous 1095 days (3 years) by the acquiring firm.

Variables	No.	Minimum	Maximum	Mean	S.D.
Panel A: ΔPost-merger Performance					
Δ Premiums Earned ($mil)	63	-522.69	0.00	-17.78	88.69
Δ Interest Expense On Debt ($mil)	54	-0.36	0.00	-0.03	0.06
Δ Pretax Income ($mil)	75	-22.81	0.26	-0.66	3.13
Δ Tot. Debt % Tot. Capital&ST. Debt	28	-0.04	80.66	24.25	17.42
Δ Total Debt % Common Equity	63	-0.04	455.38	52.07	82.78
Δ Return On Equity - Total (%)	76	1.60	55.76	15.38	9.55
Δ Cash Flow/Sales	61	-14.10	78.19	15.72	16.27
Δ Operating Profit Margin	74	-15.34	80.17	13.68	13.91
Δ Pretax Margin	74	-1.51	74.09	12.46	12.43
Δ Net Margin	74	0.80	58.48	9.85	11.20
Δ Return On Invested Capital	75	1.96	57.62	12.29	9.19
Panel B: Δ Risk					
Change of Beta - world financials	76	-0.82	0.98	0.00	0.28
Change of Beta - home financials	76	-0.85	0.70	0.01	0.28
Change of Total Risk - world financials	75	-148.25	20.45	-6.77	21.44
Change of Total Risk - home financials	75	-68.50	13.60	-5.03	14.38
Δ Volatilities-Premiums Earned	37	-768.80	87.65	-14.01	128.94
Δ Volatilities-Interest Expense On Debt	25	-81.58	91.28	2.43	32.14
Δ Volatilities-Pretax Income	43	-4374.84	1839.23	-34.96	795.07
ΔVol.- Tot. Debt % Tot. Capital&ST. Debt	13	-26.84	2.58	-4.32	9.68
Δ Volatilities-Total Debt % Common Equity	32	-27.53	350.44	12.91	63.50
Δ Volatilities- Return On Equity - Total (%)	42	-11.25	13061.39	326.57	2014.36
Δ Volatilities-Cash Flow/Sales	26	-1063.48	1.29	-64.11	209.70
Δ Volatilities- Operating Profit Margin	42	-83.87	140.20	1.35	26.35
Δ Volatilities-Pretax Margin	43	-1613.25	71.58	-34.16	247.36
Δ Volatilities- Net Margin	43	-100.69	18756.24	433.72	2860.76
Δ Volatilities-Return On Invested Capital	42	-327.93	168739.15	4179.08	26026.06
Panel C: Market Reaction					
CAR	75	-0.06	0.21	0.01	0.05
Panel D: Information Spillover					
LBYO(1) in thousands	76	0.16	0.53	0.41	0.08
LBYO(2)	76	0.27	0.98	0.78	0.14
LBYO(3)	76	0.47	2.31	1.85	0.35
LBYO(4)	76	0.43	1.85	1.47	0.27
LBYO(5)	76	0.46	2.24	1.78	0.34
LBYO(6)	76	0.52	2.59	2.08	0.41
LBYO(7)	76	0.59	2.91	2.37	0.50
Weighted LBYO	76	0.15	0.51	0.42	0.08
Panel E: Time and Technology Change					
Time	76	1.00	18.00	11.08	4.06
Computers per capita	76	21.27	82.56	54.53	17.23
Mobile phones per 100 inhabitants	76	2.07	82.74	39.77	23.73
Internet users per capita	76	0.78	75.00	41.08	21.55
Panel F: Control Variables					
Activity focus	74	-0.14	0.74	0.21	0.20
Country M&As	76	0.00	0.44	0.09	0.10
Equal size	76	0.01	0.96	0.30	0.29
Change of Herf.	76	-0.97	0.64	-0.23	0.35
Hot market	76	-0.16	0.02	-0.01	0.03
Acquirer size	76	11.52	20.27	16.54	1.98
Megamerger	76	0.00	1.00	0.64	0.48
Postmerger growth	76	-1.19	3.30	0.30	0.75
Payment	76	0.00	1.00	0.64	0.48
Target equity-to-assets	76	0.16	6.67	1.41	1.26
Cross-border deal	76	0.00	1.00	0.25	0.44
GDP growth	76	2.21	5.40	3.88	1.02
Learning-by-doing(LBYD)	76	0.00	13.00	2.47	3.31

The majority of the estimated coefficients of LBYO(3) are seven times the size of the estimated coefficient on LBYO(3)*time, which implies that the effects of learning by observing are more obvious during the early part of the sample period and become smaller gradually as time goes by.

We use alternative measures replacing the time and LBYO variables to estimate equation (5.8). Nonlinear technology trend variables are used to replace the linear time trend. The technology trend variables are computers per capita, mobile phones per 100 inhabitants and internet users per capita. Partial results are displayed in Table AI. The estimates are statistically significant and support Hypothesis 3 in the Δ Premiums Earned, Δ Cash Flow/Sales, Δ Operating Profit Margin, Δ Pre-tax Margin and Δ Net Margin. We also use alternative information state variables replacing LBYO (3) and the results are displayed in Table AII. Information state has long-lasting effects till LBYO (7) in Δ Premiums Earned, Δ Operating Profit Margin and Δ Pre-tax Margin.

Results displayed in Table 5-6 show that signs of coefficient estimates of the control variables mostly meet our expectations, and some are statistically significant. The percentage of all insurance firms acquired in a target firm's home country is negatively related to the change of post-merger performance. DeLong and DeYoung (2007) report negative and insignificant results for the State M&A variable in their banking study in the US. The results imply that those firms which successfully complete acquisitions in a country with higher barriers enjoy higher post-merger performance than in a country with lower merger barriers. M&As taking place in a more concentrated market (Change of Herf) and hot market period (Hot Market) tend to realise smaller post-merger financial performance improvement. Cross-border M&As and deals paid in cash realise larger post-merger financial performance improvement. The results indicate that M&As in which both insurance firms are very large in size tend to realise less post-merger improvement. DeLong and DeYoung (2007) report that megamergers realise a smaller improvement in efficiency ratio in their bank merger study, while realising larger improvement in ROA and ROE.

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Table 5-6 Cross-sectional Analysis of Changes in Performance (see full table in Appendix A Table AVII)

This table reports the ordinary least squares regression results for equation (5.8). The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Total Risk - Relative to World Financial Index is the standard deviation of share price in relative to the World Financial Index. Total Risk - Relative to Home Financial Index is the standard deviation of share price in relative to the Financials Index of the acquirer's home country. Beta Risk - Relative to World Financial Index is the systematic risk of the firm against the World Financial Index. Beta Risk - Relative to Home Financial Index is the systematic risk of the firm against the Financial Index in acquirer's home country. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt – Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. LBYO(x) measures the number of insurance M&As that happen during x years before announcement. Weighted LBYO use a logistic distribution to make mergers in closer years having more significant factor. Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Activity focus is the correlation of the pre-merger stock returns for the acquiring and target insurance firms. Country M&As is the portion of all insurance firms that were merged in the acquired insurer's home country during the merger year. Equal Size ranges from near 0 to 1 which indicates relative size between target and acquiring firms. Change of Herf is the change in the Herfindahl index of the insurance industry weighted by revenue in the target home country one year before and after merger. Hot market is equal to average cumulative abnormal return of public target insurance firms during the one year period before every merger announcement day in the sample in the target home country. Acquirer size is the natural log of acquirer's total assets in US dollars before merger. Megamerger is a dummy variable equals to 1 if both acquiring and target firms' total assets are more than 1 billion USD, 0 otherwise. Postmerger growth is insurer's asset growth rate over the 3 years post-merger, and it is normalised with the industry growth rate. Payment is a dummy variable if the transaction is paid by cash only, 0 otherwise. Target equity-to-assets is a book value ratio for the acquired insurance firm prior to the merger. Cross-border deal is a dummy variable if the acquirer and target are based in different countries, 0 otherwise. GDP growth is the acquirer's home country's gross domestic growth rate of the year of merger announcement. Learning-by-doing (LBYD) is the number of other insurance mergers made during the previous 1095 days (3 years) by the acquiring firm. Heteroskedastic-adjusted standard errors appear in Italic.

Dependent Variable	Δ Premiums Earned ($mil)	Δ Interest Expense On Debt ($mil)	Δ Pretax Income ($mil)	Δ Tot. Debt % Tot. Capital&ST. Debt	Δ Total Debt % Common Equity	Δ Return On Equity - Total (%)	Δ Cash Flow/Sales	Δ Operating Profit Margin	Δ Pretax Margin	Δ Net Margin	Δ Return On Invested Capital
Constant	156.9809	0.0578	-0.3883	21.7903	-521.2020	38.5922	-129.7350	-55.3947	-16.9684	1.4111	36.7226
	1.13	*0.52*	*-0.09*	*0.29*	*-2.16***	*1.69**	*-1.67**	*-1.61*	*-0.56*	*0.06*	*1.59*
LBYO(3)	-130.3630	-0.0218	-1.5767	-21.2599	192.3308	-10.0726	80.1146	43.5792	29.9041	18.9951	-2.9629
	-1.63	*-0.31*	*-0.69*	*-0.45*	*1.53*	*-1.00*	*1.85**	*2.43***	*1.83**	*1.37*	*-0.30*
Time	-8.8261	0.0128	0.6328	-7.6156	25.7501	-2.4188	19.4099	7.1860	5.1644	2.6475	-2.8408
	-0.52	*0.94*	*1.15*	*-1.01*	*0.79*	*-0.89*	*2.68***	*2.17***	*1.67**	*0.92*	*-1.23*
LBYO(3)*Time	6.9075	-0.0054	-0.2377	3.8065	-15.6200	1.6044	-11.2031	-4.8005	-3.3585	-1.7561	1.4606
	0.81	*-0.71*	*-0.91*	*0.84*	*-1.00*	*1.17*	*-2.54***	*-2.41***	*-1.79**	*-1.06*	*1.25*
Adjusted R Square	0.4663	0.4346	0.3275	0.6480	0.2114	0.1910	0.2051	0.0206	0.0079	0.0355	0.1812

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

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The coefficient on learning-by-doing is statistically significant only on total debt to common equity ratio, and it is negative. The overall results indicate that insurance firms are able to learn from observing previous mergers but not from their own mergers. One possible explanation is that firms involved in continuous acquisitions are combining multiple firms over time; the process brings noisy information to their financial reports.

5.9 Results for Market Learning by Observing – Financial Performance

Regression results from equation (5.10) are displayed in Table 5-7. Test of H5 (market efficient) are provided by the estimated derivative with respect to Δpost-merger performance in Panel B, and estimated coefficient on LBYO(3) and the interaction term LBYO(3)* Δpost-merger performance provides the test of H7 (market learning by observing in the aspect of performance change).

Out results do not support H5 that the stock market is able to identify value-enhancing mergers upon their announcement. Out of the 11 financial performance measures, 10 of them are statistically significant while only 6 of them have the expected sign. Evidently, market investors are able to correctly distinguish ex ante between insurance mergers that have favourable impacts on Interest Expense, the two Debt Ratios, Pre-tax Margin and Net Margin. On the other hand, market investors incorrectly price those mergers that have favourable change on Premium Earned, Pre-Tax Income, Operating Profit Margin, ROE and ROIC. On average, market investors are not able to efficiently price insurance firm mergers during our sample period. Our findings are generally consistent with DeLong and DeYoung (2007). DeLong and DeYoung (2007) repost negative but insignificant results for the median of LBYO (3) when the post-merger performance is defined as ROE and ROA in their bank merger study, and argue that the evidence is not consistent with the market efficient hypothesis.

In contrast, our results provide strong evidence for 'market learns by observing'. All coefficient estimates of LBYO have a positive sign and 9 out of 11 are statistically significant.

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The results are consistent with the view that, in a high-information state, investors are willing to pay more for the merger and their valuations are closer to the actual value. That indicates that learning-by-observing plays an important role in market valuation to insurance firm mergers. DeLong and DeYoung (2007) do not find statistically significant results to support the market learning by doing hypothesis, however, they prove that their results are economically significant and are relatively consistent with the hypothesis.

Coefficient estimates of control variables in these regressions are generally positively significant for country M&As, Megamerger, Cross-border deals. Investors are willing to pay more, the larger the proportion of all insurance firms that were merged in the target firm's home country in the acquisition year. Investors also pay more for cross-border deals and when both merger parties have total assets greater than one billion US dollars.

We also use alternative estimates for the information-state variable: LBYO (1), LBYO (2) and weighted LBYO, to re-test equation (5.10). Table AIII displays partial results and the coefficient estimates of the interaction terms are not significant. The results are consistent with other results we report in the base regressions.

5.10 Results for Firms Learning by Observing – Risk Management

Table 5-8 displays the results form OLS estimate of equation (5.8). We run the regression with different measures of LBYO: LBYO (1), LBYO (2), LBYO (3), LBYO (4), LBYO (5), LBYO (6), LBYO (7) and Weighted LBYO. We find that coefficient estimates of LBYO and LBYO*Time are statistically significant for LBYO (1), LBYO (2) and Weighted LBYO, the effect of learning-by-observing faded over time and appear to be statistically insignificant with LBYO (3) and over. Combining these with our findings in equation (5.8) about change in financial performance, we provide evidence that insurance acquirers learn from past mergers to improve financial performance, and reduce volatilities in share price and financial performance, supporting our H3 and H4 (insurance firm learning by doing). Table 5-8 reports regression results with learning-by-observing measured as LBYO (2), and Table AV reports partial results with alternative measures of LBYO.

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Table 5-7 Cross-sectional Analysis of CARs upon Announcement (see full table in Appendix A Table AVIII)

This table reports the ordinary least squares regression results for equation (5.10). The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt − Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. LBYO(x) measures the number of insurance M&As that happen during x years before announcement. Weighted LBYO use a logistic distribution to make mergers in closer years having more significant factor. Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Activity focus is the correlation of the pre-merger stock returns for the acquiring and target insurance firms. Country M&As is the portion of all insurance firms that were merged in the acquired insurer's home country during the merger year. Equal Size ranges from near 0 to 1 which indicates relative size between target and acquiring firms. Change of Herf is the change in the Herfindahl index of the insurance industry weighted by revenue in the target home country one year before and after merger. Hot market is equal to average cumulative abnormal return of public target insurance firms during the one year period before every merger announcement day in the sample in the target home country. Acquirer size is the natural log of acquirer's total assets in US dollars before merger. Megamerger is a dummy variable equals to 1 if both acquiring and target firms' total assets are more than 1 billion USD, 0 otherwise. Postmerger growth is insurer's asset growth rate over the 3 years post-merger, and it is normalised with the industry growth rate. Payment is a dummy variable if the transaction is paid by cash only, 0 otherwise. Target equity-to-assets is a book value ratio for the acquired insurance firm prior to the merger. Cross-border deal is a dummy variable if the acquirer and target are based in different countries, 0 otherwise. GDP growth is the acquirer's home country's gross domestic growth rate of the year of merger announcement. Learning-by-doing (LBYD) is the number of other insurance mergers made during the previous 1095 days (3 years) by the acquiring firm. Heteroskedastic-adjusted standard errors appear in Italic.

Δ Post-merger performance variables	Δ Premiums Earned ($mil)	Δ Interest Expense On Debt ($mil)	Δ Pretax Income ($mil)	Δ Tot. Debt % Tot. Capital&ST. Debt	Δ Total Debt % Common Equity	Δ Return On Equity - Total (%)	Δ Cash Flow/Sales	Δ Operating Profit Margin	Δ Pretax Margin	Δ Net Margin	Δ Return On Invested Capital
Panel A: OLS Results											
Constant	0.1695	0.0365	0.0469	-0.0103	0.0439	0.0432	0.1124	0.0158	0.0381	0.0299	0.0583
	1.35	*0.47*	*0.48*	*-0.05*	*0.47*	*0.44*	*0.70*	*0.17*	*0.39*	*0.32*	*0.56*
Δ Post merger performance	0.0000	0.0000	0.0000	-0.0007	0.0002	-0.0002	-0.0034	0.0015	-0.0005	0.0006	-0.0025
	*-1.73**	*-0.22*	*-1.56*	*-0.07*	*0.40*	*-0.09*	*-1.01*	*0.70*	*-0.19*	*0.29*	*-0.68*
LBYO(3)	0.0001	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0001	0.0000	0.0001	0.0000
	*2.35***	*1.81**	*2.94***	*0.47*	*2.27***	*2.73***	*0.62*	*2.96***	*2.59***	*3.26***	*2.07***
LBYO(3)*Δ Post merger perf.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	*1.73**	*0.21*	*1.55*	*-0.04*	*-0.54*	*0.06*	*0.98*	*-0.76*	*0.22*	*-0.25*	*0.60*
Adjusted R Square	0.0791	0.0870	0.0754	0.0713	0.0528	0.1005	0.1984	0.1005	0.2959	0.0126	-0.9006
Panel B: ∂CAR/∂ΔPerformance											
Mean	0.0000	0.0000	0.0000	-0.0010	-0.0001	0.0000	0.0001	-0.0001	0.0001	0.0000	-0.0005
t value	*-8.63***	*-9.31***	*-8.94***	*-126.99***	*-9.64***	*-13.03***	*1.14*	*-3.78***	*6.00***	*3.16***	*-10.92***

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

In Table 5-8, the coefficient estimates of LBYO (2) are statistically significant and positive for the following risk measurements: change of volatilities in Interest Expense on Debt, Pre-tax Income, ROE and Net Margin. This implies that the higher the information state, the post-merger risk decreases more or increases less.

We also estimate equation (5.9) with an alternative definition for the time variables. We replace time with the non-linear technology time trend variables: computer per capita, mobile phones per 100 inhabitants and internet user per capita. Partial results are displayed in Table AIV. The results continue to provide support for H4 in the change of volatility of Interest Expense to Debt, and coefficient estimates of the majority of the other variables have the expected negative sign.

Returning to Table 5-8, a number of control variables are reported significantly related to change of risk after merger. The following are statistically significant in at least two regressions: Payment, Target Equity-to-Asset ratio, interaction term of Target Equity-to-Asset and time, cross-border deal dummy variable. Cash payment and cross-border deals can significantly reduce risk. This is consistent with many past studies. The coefficient estimates of Target Equity-to-Asset are negative and significant when risks are measured as changes in volatilities of ROE and Net Margin; this implies that depleted levels of capital in target firms increase the risk of the merger firm after merger. The interaction term of Target Equity-to-Asset takes into consideration the risk change over time in the insurance industry.

5.11 Result for Market Learning by Observing – Risk Management

Table 5-9 reports the ordinary least square estimation results of equation (5.11). Panels B and D display the estimated derivative and t-value of Δpost-merger Risk, providing a test of Hypothesis 6 and the coefficient estimation on the LBYO (3), and the interaction term LBYO(3)* Δpost-merger Risk providing the test of Hypothesis 8. H6 is the efficient market test and H8 is the market learning by observing test. Differentiating from H5 and H7, which study the financial performance perspective, H6 and H8 study the risk perspective. The risks are measured both in terms of share price returns and financial reporting items.

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Table 5-8 Cross-sectional Analysis of Change in Risk (see full table in Appendix A Table AIX)

	Panel A: Change in Financial Performance Risk								
Δ Risk variables	Δ Volatilities-Premiums Earned	Δ Volatilities-Interest Expense On Debt	Δ Volatilities-Pretax Income	Δ Volatilities-Return On Equity - Total (%)	Δ Volatilities-Cash Flow/Sales	Δ Volatilities-Operating Profit Margin	Δ Volatilities-Pretax Margin	Δ Volatilities-Net Margin	Δ Volatilities-Return On Invested Capital
Constant	-408.83	279.39	8398.88	8808.47	-152.42	134.16	1157.80	11997.91	143455.30
	-1.10	*1.16*	*1.66**	*1.40*	*-0.07*	*1.31*	*0.87*	*1.38*	*0.86*
LBYO (2)	1479.75	-622.68	-11413.00	-13851.60	192.46	-87.04	-1816.33	-18748.90	-249470.00
	1.52	*-1.83**	*-1.7**	*-2.18***	*0.07*	*-0.57*	*-0.94*	*-2.07***	*-1.01*
Time	10.83	-52.36	-707.52	-958.04	16.57	-11.14	-95.92	-1420.79	-11143.40
	0.13	*-1.95**	*-1.54*	*-1.78**	*0.09*	*-1.04*	*-0.72*	*-1.86**	*-0.74*
LBYO(2) *Time	-117.32	82.96	935.16	1795.14	-80.38	14.52	133.26	2533.83	17144.27
	-1.35	*1.97***	*1.63*	*2.47***	*-0.24*	*0.96*	*0.82*	*2.46***	*0.86*
Adjusted R Square	0.00	-0.02	-0.02	0.77	-0.74	0.06	-0.24	0.77	-0.17

	Panel B: Change in Beta Risk and Total Risk				
Δ Risk variables	Change of Beta - world financials	Change of Beta - home financials	Change of Total Risk - world financials	Change of Total Risk - home financials	
Constant	-0.2223	0.8616	-73.0008	-46.4557	
	-0.31	*1.24*	*-1.29*	*-1.37*	
LBYO (2)	0.5767	-0.6816	29.4857	26.2000	
	1.02	*-0.85*	*0.68*	*0.73*	
Time	0.0182	-0.0587	-0.8526	-1.4159	
	0.40	*-0.79*	*-0.24*	*-0.43*	
LBYO (2) *Time	-0.0501	0.0884	-0.7952	0.8204	
	-0.83	*0.97*	*-0.15*	*0.19*	
Adjusted R Square	-0.1136	-0.1082	0.0432	0.1061	

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

This table reports the ordinary least squares regression results for equation (5.9). The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk

measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Total Risk - Relative to World Financial Index is the standard deviation of share price in relative to the World Financial Index. Total Risk - Relative to Home Financial Index is the standard deviation of share price in relative to the Financials Index of the acquirer's home country. Beta Risk - Relative to World Financial Index is the systematic risk of the firm against the World Financial Index. Beta Risk - Relative to Home Financial Index is the systematic risk of the firm against the Financial Index in acquirer's home country. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt – Interest Capitalised)*(1-Tax Rate)))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. LBYO(x) measures the number of insurance M&As that happen during x years before announcement. Weighted LBYO use a logistic distribution to make mergers in closer years having more significant factor. Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Activity focus is the correlation of the pre-merger stock returns for the acquiring and target insurance firms. Country M&As is the portion of all insurance firms that were merged in the acquired insurer's home country during the merger year. Equal Size ranges from near 0 to 1 which indicates relative size between target and acquiring firms. Change of Herf is the change in the Herfindahl index of the insurance industry weighted by revenue in the target home country one year before and after merger. Hot market is equal to average cumulative abnormal return of public target insurance firms during the one year period before every merger announcement day in the sample in the target home country. Acquirer size is the natural log of acquirer's total assets in US dollars before merger. Megamerger is a dummy variable equals to 1 if both acquiring and target firms' total assets are more than 1 billion USD, 0 otherwise. Postmerger growth is insurer's asset growth rate over the 3 years post-merger, and it is normalised with the industry growth rate. Payment is a dummy variable if the transaction is paid by cash only, 0 otherwise. Target equity-to-assets is a book value ratio for the acquired insurance firm prior to the merger. Cross-border deal is a dummy variable if the acquirer and target are based in different countries, 0 otherwise. GDP growth is the acquirer's home country's gross domestic growth rate of the year of merger announcement. Learning-by-doing (LBYD) is the number of other insurance mergers made during the previous 1095 days (3 years) by the acquiring firm. Heteroskedastic-adjusted standard errors appear in Italic.

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The results provide little evidence consistent with H6 (market efficient). The estimated derivatives $\partial CAR/\partial \Delta$post-merger risk are statistically significant and negative when post-merger risks are measured by stock price returns, but are different in signs when post-merger risks are measured by volatilities in financial reporting items. The fact that this derivative test yields estimates with different signs suggests that investors are not able to price insurance mergers accurately during the sample period.

On the other hand, the results report weak evidence consistent with H8, which market investors learn by observing. The positive and statistically significant coefficient estimates of LBYO (3) suggest that investors are more willing to price the mergers in premium when high information-state reduces uncertainty. The coefficient estimates of the interaction term LBYO (3)* Δpost-merger Risk are all positive but not significant when the risk is measured with share price returns, namely, Total Relative Risk and Beta Risk. The coefficients are not significant when the risks are measured with financial reporting items. This indicates that additional information provided from learning-by-doing increases investors' ability to predict share price risk to a certain degree; however, it does not help much in predicting financial performance volatilities. One reason can be that financial performance volatilities are a noisy proxy as the investor's knowledge when the merger takes place, and we will not be able to observe such information until eight years after merger completion.

We also use alternative estimates for the information-state variable: LBYO (1), LBYO (2) and weighted LBYO, to re-test equation (5.11). Table AVI displays partial results and the coefficient estimates of the interaction terms are not significant. The results are consistent with other results we report in the base regressions.

5.12 Conclusion

We study the change in long-term performance and risk of 76 mergers between listed insurance companies around the world. The M&As were announced and completed between the years 1990 and 2007. We also test whether market investors are able to forecast this long-run performance and risk change. In general, our results show that insurance firms improve

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financial performance and reduce risk in stock price returns. However, results of short-term CAR (cumulative abnormal return) suggest that investors are poor evaluators of insurance mergers.

We hypothesise that both managers and investors are able to learn by observing previous insurance firm mergers. We test the hypothesis with respect to financial performance and risk profile separately. We find consistent evidence that managers learn by observing. In particular, improvements in financial performance and risk profile are both positively related to the number of insurance firm mergers completed during the past few years. In contrast, managers are not found to be able to learn by actively acquiring other firms in the recent past (learning-by-doing). We report investors are more likely to price highly for a merger when there is a greater number of mergers completed in the recent past. This indicates that investors are able to learn additional information by observing past mergers. High information state reduces uncertainty and leads to better valuation. We report weak evidence that the additional information obtained from previous mergers helps market investors to more precisely predict financial performance and risk change. This is consistent with semi-strong market efficiency. Investors only have partial information; when the information is materially inadequate in an evolving deregulation environment, some additional information can help investors in their valuation only to a certain degree.

Figure 2 displays that the number of insurance mergers increases in an uptrend in the 1990s, then there are ups and downs after 2000. This indicates that merger practice in the insurance industry is new to many acquirers, particularly in the 1990s, and that managers obtain information transmitted from previous mergers in order to develop best practice in merger execution. Market investors also accumulate information overflowing from previous mergers to evaluate current mergers. Firms advance best practices and investors accumulate in-depth knowledge about mergers over time, along with technology improvement. We obtain robust results in regressions using other time-related variables, such as technology trend and business cycles, to replace the linear time trend. The most recent years after previous mergers are observed have the strongest results, and the effects decelerate when previous mergers observed were completed further back in time. This is consistent with DeLong and DeYoung (2007) and suggests that 1) best merger practices in the insurance industry have evolved

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Table 5-9 Cross-sectional Analysis of CAR Vs Change in Risk (see full table in Appendix A Table AX)

Panel A: Change in Beta Risk and Total Risk				
Δ Risk Variables	Change of Beta - world financials	Change of Beta - home financials	Change of Total Risk - world financials	Change of Total Risk - home financials
Constant	0.0163	0.0366	0.0608	0.0724
	0.18	*0.40*	*0.63*	*0.73*
Δ RISK	-0.1669	-0.1332	-0.0043	-0.0014
	-1.22	*-1.41*	*-1.45*	*-0.37*
LBYO(3)	0.0000	0.0000	0.0000	0.0000
	*2.98** *	*2.98** *	*3.12** *	*2.45** *
LBYO(3)*Δpost-merger Risk.	0.0001	0.0001	0.0000	0.0000
	1.39	*1.48*	*1.53*	*0.48*
Adjusted R Square	0.0846	0.1046	0.1101	0.0881
Panel B: $\partial CAR/\partial \Delta Risk$				
Mean	-0.092	-0.074	-0.002	-0.0006
t-value	*-59.3** *	*-60.13** *	*-64.54** *	*-41.58** *

Panel C: Change in Financial Performance Risk									
Δ Risk Variables	Δ Volatilty Interest Expense On Debt	Δ Volatilty Pretax Income	Δ Volatilty Total Debt % Common Equity	Δ Volatilty Return On Equity - Total (%)	Δ Volatilty Cash Flow/Sales	Δ Volatilty Operating Profit Margin	Δ Volatilty Pretax Margin	Δ Volatilty Net Margin	Δ Volatilty Return On Invested Capital
Constant	0.6438	0.0706	0.3348	0.1730	-5.8286	0.0593	0.0531	0.0417	0.0674
	1.51	0.76	*4.69** *	0.16	*-0.17*	0.66	*0.49*	*0.46*	0.76
Δ RISK	0.0075	-0.0001	-0.0107	0.0727	-0.1367	-0.0024	0.0020	0.0038	0.0001
	0.55	-0.36	*-0.99*	0.13	*-0.14*	-0.15	*0.06*	*0.30*	0.46
LBYO(3)	-0.0002	0.0000	-0.0001	0.0000	0.0011	0.0001	0.0001	0.0001	0.0001
	-0.85	0.96	*-2.04** *	0.09	*0.22*	1.41	*0.56*	*1.49*	1.94*
LBYO(3)*Δpost-merger risk	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
	-0.53	0.33	*0.98*	-0.13	*0.14*	0.14	*-0.06*	*-0.31*	-0.46
Adjusted R Square	0.3121	-0.0845	0.2479	-32.2790	-108.5400	-0.0776	-0.0776	0.0761	0.1790
Panel D: $\partial CAR/\partial \Delta Risk$									
Mean	0.0047	0.0000	-0.0050	0.0416	-0.0850	-0.0010	0.0012	0.0022	0.0000
t-value	*81.29** *	-81.79**	*-50.12** *	64.09**	*-79.8** *	-58.06**	*80.39** *	*67.89** *	31.58**

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

This table reports the ordinary least squares regression results for equation (5.11). The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Total Risk - Relative to World Financial Index is the standard deviation of share price in relative to the World Financial Index. Total Risk - Relative to Home Financial Index is the standard deviation of share price in relative to the Financials Index of the acquirer's home country. Beta Risk - Relative to World Financial Index is the systematic risk of the firm against the World Financial Index. Beta Risk - Relative to Home Financial Index is the systematic risk of the firm against the Financial Index in acquirer's home country. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt – Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. LBYO(x) measures the number of insurance M&As that happen during x years before announcement. Weighted LBYO use a logistic distribution to make mergers in closer years having more significant factor.Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Activity focus is the correlation of the pre-merger stock returns for the acquiring and target insurance firms. Country M&As is the portion of all insurance firms that were merged in the acquired insurer's home country during the merger year. Equal Size ranges from near 0 to 1 which indicates relative size between target and acquiring firms. Change of Herf is the change in the Herfindahl index of the insurance industry weighted by revenue in the target home country one year before and after merger. Hot market is equal to average cumulative abnormal return of public target insurance firms during the one year period before every merger announcement day in the sample in the target home country. Acquirer size is the natural log of acquirer's total assets in US dollars before merger. Megamerger is a dummy variable equals to 1 if both acquiring and target firms' total assets are more than 1 billion USD, 0 otherwise. Postmerger growth is insurer's asset growth rate over the 3 years post-merger, and it is normalised with the industry growth rate. Payment is a dummy variable if the transaction is paid by cash only, 0 otherwise. Target equity-to-assets is a book value ratio for the acquired insurance firm prior to the merger. Cross-border deal is a dummy variable if the acquirer and target are based in different countries, 0 otherwise. GDP growth is the acquirer's home country's gross domestic growth rate of the year of merger announcement. Learning-by-doing (LBYD) is the number of other insurance mergers made during the previous 1095 days (3 years) by the acquiring firm.Heteroskedastic-adjusted standard errors appear in Italic.

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dynamically with technological advances and changes in the economic environment during the 1990s and 2000s; and 2) clustered events strengthen information transmission and benefits.

More recent studies have examined systemic risks of insurance companies, however there is no consensus on this topic. Acharya et al (2009) argue that an A.I.G. collapse would pose systemic risk which could impact its counterparties and their creditworthiness. Cummins and Weiss (2010) conclude that the core activities of US insurers do not pose systemic risk.

CHAPTER 6

CONCLUSION

This dissertation consists of four independent studies on mergers and acquisitions in the insurance industry. In particular, it has focussed on wealth effects, risk profile change, determinants of the effects, long-term financial performance and risk management, and managers and investors learning by observing past merger activities. Each chapter addresses one or more of the above topics. The insurance industry is chosen as the subject because M&A activities have grown dramatically in the past decades and some of the topics have not been researched in previous studies.

The first study examined in this dissertation, in Chapter 2, concerns bank mergers with insurance firms in the European market. The empirical results indicate that acquirers' total risk does not change, while positive wealth effect is documented. This implies that bank regulators do not need to be overly concerned that the introduction of Bancassurance will lead to an unstable banking system.

Chapter 3 studies mergers and acquisitions between insurance firms around the globe. The empirical results indicate that total risk reduces and systematic risk does not change for bidder firms. Both acquirer and target experience wealth creation for domestic transactions, while no effect is found for cross-border deals. Both wealth and risk effects are strongly related to governance, GDP growth and currency exchange rate volatilities in the country of the target firm. The findings add to past studies and imply that deregulation facilitates a more stable and stronger insurance industry.

In chapter 4, rival firms' wealth effects arising from mergers in the banking and insurance industries are examined. Empirical results show that investors revalue competitors and the wealth effect is significantly related to target firms' abnormal returns. This implies that competitors are viewed as the next potential targets.

Chapter 5 examines the hypothesis that managers and investors learn by observing spill-over information from past merger activities. This study contributes to the literature by providing empirical evidence that risk management is improved after merger, and that managers learn to manage risk better by observing information spilled over from previous M&As. Investors are reported to have a poor valuation of merger events in a changing environment without adequate information. This is consistent with semi-strong market efficiency. These results question the effectiveness of market participants' efforts, such as regulators, investors, brokers and media, to eliminate information asymmetry.

This dissertation is the first comprehensive study of the bidder banks in Europe on the risk and wealth effects emerging their mergers with insurance companies. The empirical results indicate that the market rewards acquiring banks because investors expect synergy creation. At the same time, it is evident that banks are beneficial when they acquire insurance companies in the same country because less incorporating costs are incurred.

This dissertation posts the question whether quality of the governance in a country play an important role in value creation and risk reduction in the financial markets. The dissertation contribute to the literature and provides empirical evidence that good quality of governance in target firm home country can significantly reduce the change in risk experienced by bidder insurance firms. In addition, the results support that macro-economic factors provide explanation to both wealth effects and risk changes. The results further suggest that macroeconomic factors have lasting influence on the acquirer's risk profile in foreign deals.

The dissertation studies the intra-industry effects arsing from Mergers and Acquisitions in the global banking and insurance industry. The sample includes transactions between year 1990 to 2009 and 6474 sample rival firms. The results show that the rival's cumulative abnormal returns are significantly positively related to targets' cumulative abnormal returns and negatively related to rival's firm size. The result is consistent with the hypothesis that merger events transmit a signal to investors, indicating that rivals are more likely to become acquisition targets.

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The dissertation is the first study to research whether managers and investors are able to learn by observing from previous insurance firm mergers, in terms of financial performance and risk profile. We find consistent evidence that managers learn by observing. In particular, improvements in financial performance and risk profile are both positively related to the number of insurance firm mergers completed during the past years. In contrast, managers are not found to be able to learn by actively acquiring other firms in the recent past (learning-by-doing). The results report that investors are more likely to price highly for a merger when there is a great number of mergers completed in the recent past. This indicates that investors are able to learn additional information by observing past mergers. Weak evidence is provided that the additional information obtained from previous mergers helps market investors to more precisely predict financial performance and risk change. This is consistent with semi-strong market efficiency. Investors only have partial information; when the information is materially inadequate in an evolving deregulation environment, some additional information can help investors in their valuation only to a certain degree.

A healthy financial system is an important pillar to support economic development and prosperity. Like the two edges of a double edged sword, risk and return co-exist in the financial system and can bring unfavourable and favourable consequences to the system. My research provides a valuable contribution to our understanding of wealth and risk effects in the financial services industry.

REFERENCES

Acharya, Viral V, Biggs, J., Richardson, M. and Ryan, M., 2009, On the
Financial Regulation of Insurance Companies, working paper, NYU Stern School of
Business, New York.

Agmon, T. and D. Lessard (1977), Investor recognition of corporate international
diversification, Journal of Finance 32, 1049-1055

Aizenman, J. (2003), Volatility, employment and the patterns of FDI in emerging markets,
Journal of Development Economics 72, pp. 585-601

Akhigbe, A., and Madura, J. (1999) "Intra-Industry Signals Embedded in Bank Acquisition
Announcements", Journal of Banking and Finance, vol. 23, no. 11, November, pp. 1637-
1654.

Akhigbe, Aigbe, and Madura, Jeff, 2001, Intra-industry Signals Resulting from Insurance
Company Mergers, Journal of Risk and Insurance, 68, 489-505

Altunbas, Yener, and David M. Ib´anez, 2004, Mergers and acquisitions and bank
performance in Europe: The role of strategic similarities, Working Paper no. 398,
European Central Bank.

Amel, D., Barnes, C., Panetta, F. and C. Salleo (2004), Consolidation and efficiency in the
financial sector: A review of the international evidence, Journal of Banking and
Finance, forthcoming

Amihud, Y. Lev, B., 1981, Risk reduction as a managerial motive for conglomerate mergers,
Bell Journal of Economics 12, 605-617

Amihud, Y., DeLong, G., Saunders, A., 2002. The effects of cross-border mergers on bank
risk and value. Journal of International Money and Finance. 21, 857-877.

Anderson, E. and H. Gatignon (1986), Modes of Foreign Entry: A Transaction Cost Analysis
and Propositions, Journal of International Business Studies 17, pp 1-26

Andrade, G., Mitchell, M, and Stafford, E. (2001) "New Evidence and Perspectives on Mergers",
Journal of Economic Perspectives, vol. 15, no. 2, Spring, pp. 103-120.

128

Andrade, G. and Stafford, E. (2004) "Investigating the economic role of mergers", Journal of Corporate Finance, vol. 10, pp. 1-36.

Arena, Marco, Does Insurance Market Activity Promote Economic Growth? A Cross-Country Study for Industrialized and Developing Countries. Journal of Risk & Insurance, Vol. 75, Issue 4, pp. 921-946, December 2008. Available at SSRN: http://ssrn.com/abstract=1296891 or doi:10.1111/j.1539-6975.2008.00291.x

Asquith P., Bruner R. and D. Mullins 1983, The Gains to Biding Firms from Merger, Journal of Financial Economics 11, 121-139

Bell, Marian and Keller, Benno, 2009, Insurance and Stability: The Reform of Insurance Regulation, (Zurich, Switzerland: Zurich Financial Services Group).

Bendeck, Yvette M., and Waller, Edward R., (2007) "Bank Acquisition Annoucements And Intra-Industry Effects", Journal of Business and Economics Research, vol. 5, no.7, July, pp.15-22.

Berger, A., Buch, C, DeLong G. and R. DeYoung (2004), Exporting financial institutions management via foreign direct investment mergers and acquisitions, Journal of International Money and Finance 23, pp. 333-366

Berger, A., Cummins, D., Weiss and H. Zi (2000), Conglomeration versus Strategic Focus: Evidence from the Insurance Industry, Journal of Financial Intermediation 9, pp 323-632

Boehmer, Ekkehart, Jim Musumeci and Annette Poulsen (1991), Event-study Methodology Under Conditions of Event-induced Variance," Journal of Financial Economics 30, 253-272.

Botzen, W.J.W., van den Bergh, J.C.J.M. and Bouwer, L.M., 2010, Climate change and increased risk for the insurance sector: a global perspective and an assessment for the Netherlands, Nat Hazards, 52, 577-598.

Bradley, M. (1980). "Interfirm Tender Offers and the Market for Corporate Control" Journal of Business, vol. 53 pp.345-376.

Buch, C.M. and DeLong, G. (2002), Cross-Border Bank Mergers: What Lures the Rare

129

Animal? Journal of Banking and Finance, forthcoming

Bulow, J., Huang, M. and P. Klemperer (1999), Toeholds and Takeovers, Journal of Political Economy, 107, pp. 427-454.

Cakici, N., Hessel, C. and K. Tandon (1996), Foreign Acquisitions in the United States: Effect on Shareholder Wealth of Foreign Acquiring Firms, Journal of Banking and Finance 20, pp 307-329

Campa, J.M., Hernando, I., (2006). M&As performance in the European financial industry. Journal of Banking and Finance. 30, 3367-3392

Carow, K. A., 2001a, Citigroup-Travelers Group merger: Challenging barriers between banking and insurance. Journal of Banking and Finance, 15, 825-846

Carow, K. A., 2001b, The Wealth Effects of Allowing Bank Entry into the Insurance Industry. Journal of Risk and Insurance, 68(1):129-150

CEA, Insurers of Europe, 2010, Insurance: A Unique Sector – Why Insurers Differ From Banks (Brussels, Belgium).

Chen, Zhian, Donghui Li, LI Liao, Fariborz Moshirian and Csaba Szablocs, Expansion and consolidation of bancassurance in the 21st century, Journal of International Financial Markets, Institute and Money, 19, 633-644

Chen, Zhian, Donghui Li and Fariborz Moshirian, (2005), China's financial services industry: the intra-industry effects of privatisation of the Bank of China Hong Kong, Journal of Banking and Finance, 29, 2291-2324

Click, R.W. and P. Harrison (2000), Does Multinationality Matter? Evidence of Value Destruction U.S. Multinational Corporations, Federal Reserve System, Working Paper

Coeurdacier, Nicolas , Roberto A. DeSantis, and Antonin Aviat, 2009, Cross-border mergers and acquisitions and European integration, Economic Policy January, 55-106.

Cornett, M., and Tehranian, H., (1992) "Changes in Corporate Perforamance Associated with Bank Acquisitions", Journal of Financial Economics, vol. 31, pp. 211-234.

Corrado, C.J. (1989) "A Non-Parametric Test for Abnormal Security-Price Performance in Event

Studies", Journal of Financial Economics, vol. 23, no. 2, August, pp. 385-395.

Cummins, D., Tennyson, S. and M. Weiss, (1999), Consolidation and Efficiency in the U.S. Life Insurance Industry, Journal of Banking and Finance, 23, pp. 325-357.

Cummins, D., and Weiss, M. 2004, Consolidation in the European Insurance Industry: Do Mergers and Acquisitions Create Value for Shareholders? Brookings-Wharton Papers on Financial Services, vol. 0, no. 0, pp. 217-253.

Cummins, J. David and Xiaoying Xie (2008), Mergers and acquisitions in the US property-liability insurance industry: Productivity and efficiency effects, Journal of Banking and Finance, 32, pp.30-35

Cummins, J. David and Mary A. Weiss, 2009, Convergence of Insurance and Financial Markets: Hybrid and Securitized Risk-Transfer Solutions, The Journal of Risk and Insurance 76 (3): 493-545.

Cummins, John David and Weiss, Mary A., 2010, Systemic Risk and the U.S. Insurance Sector. Available at SSRN: http://ssrn.com/abstract=1725512

Cummins, J. David and Xiaoying Xie, (2009) "Market values and efficiency in US insurer acquisitions and divestitures", Managerial Finance, Vol. 35 Iss: 2, pp.128 – 155

Cybo-Ottone, Alberto and Murgia, Maurizio, 2000, Mergers and shareholder wealth in European banking, Journal of Banking and Finance, Volume 24, Issue 6, 831-859.

Dickey, D., and W. Fuller. "Likelihood Ratio Test for Autoregressive Time Series with a Unit Root."Econometrica, 49, 1981, pp. 1057-1072.

Dietrich, J., and Sorensen, E. (1984) "An Application of Logit Analysis to Prediction of Merger Targets", Journal of Business Research, vol. 12, no. 3, September, pp. 393-402.

DeLong, G.L., 2001, Stockholder gains from focusing versus diversifying bank mergers, Journal of Financial Economics 59, 221-252.

DeLong, Gayle, 2003, Does long-term performance of mergers match market expectations? Evidence from the U.S. banking industry, Financial Management 32, 5-26.

DeLong, Gayle, and DeYoung, Robert, 2007, Learning by Observing: Information Spillovers

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in the Execution and Valuation of Commercial Bank M&As, the Journal of Finance, Vol. LXII, No. 1, pp 181-215

DeYoung, Robert, 1997, Bank mergers, X-efficiency, and the market for corporate control, ManagerialFinance 23, 32–47.

Doukas, J. and N. Travlos (1988), The Effect of Corporate Multinationalism on shareholders' wealth: evidence from international acquisitions. Journal of Finance 43, pp. 1611-1175.

Eckbo, B.E. (1983) "Horizontal Mergers, Collusion, and Stockholder Wealth", Journal of Financial Economics, vol. 11, no. 1-4, April, pp. 241-273.

Eling, Martin and Michael Luhnen, (2009), Efficiency in the international insurance industry: A cross-country comparison, Journal of Banking and Finance, 34, 1497-1509

Elyasiani, Elyas and Iqbal Mansur, 1998, Sensitivity of the bank stock returns distribution to changes in the level and volatility of interest rate: a garch-m model, Journal of Banking and Finance 22, 535-563

Fang, Hsing and Jean C. H. Loo, 1996, Foreign exchange risk and common stock returns: a note on international evidence, Journal of Business Finance and Accounting 23(3), 473-480.

Fields, L. Paige, Donald R. Fraser and James W. Kolari, 2004. What's different about bancassurance? Evidence of wealth gains to banks and insurance companies, Mays Business School, Texas A&M University, Working Paper.

Flannery, Mark J., and Christopher M. James, 1984, The effect of interest rate changes on the common stock returns of financial institutions, The Journal of Finance, 4, 1141-1153.

Focarelli, D. and A. Pozzolo, (2001), The Patterns of Cross-Border Bank Mergers and Shareholdings in OECD Countries, Journal of Banking and Finance, 25, pp 2305-2337

Fuller, Kathleen, Jeffry Netter, and Mike Stegemoller, 2002, What do returns to acquiring

firms tell us? Evidence from firms that make many acquisitions, Journal of Finance 4, 1763-1793.

Garfinkel J. A., Hankins, K. W., 2011, The role of risk management in mergers and merger waves, Journal of Financial Economics, doi:10.1016/j.jfineco.2011.03.011

Gelos, R. G. and S. Wei (2005), Transparency and International Portfolio Holdings, Journal of Finance, 6, pp. 2987-3020

Genetay, N., and P.Molyneux, 1998, Bancassurance (Macmillan Press, Ltd., London) Global competitiveness Report 2008-2009, World Economic Forum

Gollier, C., Kohl, P. and J. Rochet (1997), Risk-Taking Behavior with Limited Liability and Risk Aversion, Journal of Risk and Insurance, 64, pp. 347-70

Gonzalez, P., Vasconcesllos, G., Kish, R. and J. Kramer (1997), Cross-Border Mergers and Acquisitions: Maximizing the Value of the Firm, Applied Financial Economics, 7, pp. 295-305

Grossman, S., and Hart, O. (1980), "Takeover Bids, the Free-Rider Problem, and the Theory of the Corporation", Bell Journal of Economics, vol. 11, no. 1, Spring, pp.42-64.

Group of Ten (2001), Report on Consolidation in the Financial Sector, Bank for International Settlements, Basle, Switzerland.

Hankins, K.W., 2009. How do financial firms manage risk? Unraveling the interaction of financial and operational hedging. Management Science, Articles in Advance, pp. 1-16

Harford, J., 2005. What drives merger waves? Journal of Financial Economics, Vol. 77, No. 3, September 2005, pp. 529-560.

Harford, Jarrad, S. Klasa and N. Walcott, 2009, Do firms have leverage targets: Evidence from acquisitions, Journal of Financial Economics, Vol 93, Issue 1, July 2009, pages:1-14.

Harris, R. and D. Ravenscraft (1991), The Role of Acquisitions in Foreign Direct Investment: Evidence From the US Stock Market, Journal of Finance 46, pp 825-844

Mitchell, M.L., and Stafford, E. (2001) "New Evidence and Perspectives on Mergers", Journal of Economic Perspectives, vol. 15, no. 2, Spring, pp. 103-120.

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., Ryngaert, M.D., 1994, The overall gains from large bank mergers. Journal of Banking and Finance 18, 1155-1176.

Huang, Y. and R. Walkling (1987), Target Abnormal Returns Associated with Acquisition Announcements, Journal of Financial Economics 19, pp 329-349

Hughes, J. P., W. Lang. L. J. Mester, C.-G. Moon. 1996. Efficient banking under interstate branching. Journal of Money, Credit and Banking, 28 1045-1071.

Jacquillat, B. and B. Solnik (1978), Multinational Firms: A Poor Tool for International Diversification, Journal of Portfolio Management, 4, pp. 8-12.

Jensen, M. (1986), Agency Costs of Free Cash Flow, Corporate Finance and Takeovers, American Economic Review, Vol. 76, No.2 , pp 323-329

John, K., John, T. and L. Senbet (1991), Risk-Shifting Incentives of Depository Institutions: A New Perspective on Federal Deposit Insurance Reform, Journal of Banking and Finance, 15, pp. 895-915

Kaufmann, D., A. Kraay and M. Mastruzzi (2008), Governance Matters VII: Aggregate and Individual Governance Indicators, 1996-2007, World Bank Policy Research Working Paper No. 4654

Kayhan, A., and S. Titman, 2007. Firms' histories and their capital structure. Journal of Financial Economics 83, 1-32

Kiymaz, H. and T. Mukherjee (2000), The Impact of Country Diversification on Wealth

    Effects in Cross-Border Mergers, Financial Review 35, pp 465-482

Kiymaz, H. (2004), Cross-Border Acquisitions of US Financial Institutions: Impact of

    Macroeconomic Factors, Journal of Banking and Finance 28, pp. 1413-1439

Koeplin, John, Atulya Sarin, and Alan Shapiro, 2000, The private company discount, Journal

    of Applied Corporate Finance 12, 94-101.

Lamont, O. and C. Polk (2002), Does Diversification Destroy Value? Evidence from the

    industry shocks, Journal of Financial Economics, 63, pp. 51-77

La Porta, R., A. Shleifer, R. Vishney, and F. Lopez de Silanes. (1998), Law and Finance,

    Journal of Political Economy, 106, pp. 1113-1155

Lai, Gene C., McNamara, Michael J. and Yu, Tong, The Wealth Effect of Demutualization:

    Evidence from the U.S. Property-Liability and Life Insurance Industries. Journal of
    Risk & Insurance, Vol. 75, Issue 1, pp. 125-144, March 2008. Available at SSRN:
    http://ssrn.com/abstract=1103702 or doi:10.1111/j.1539-6975.2007.00251.x

Leland, H. E., 2007. Financial synergies and the optimal scope of the firm: Implications for

    mergers, spinoffs, and structure finance, The Journal of Finance 62, 765-807

Lewellen, W. (1971), A Pure Financial Rationale for the Conglomerate Merger, Journal of

    Finance, 26, pp. 521-37

Li, D., Fariborz Moshirian, Timothy Wee, and Eliza Wu, Foreign exchange exposure:

    evidence from the U.S. insurance industry, 19 306-320

Ljung, G., and G. Box. "On a Measure of Lack of Fit in Timer Series Models." Biometrika,

    66,1979, pp.265-270.

Mills, Evan, 2005, Availability and Affordability of Insurance Under Climate Change,

    Presentation to 2005 NAIC Winter Meeting Chicago

Mills, Evan, 2009, A Global Review of Insurance Industry Response to Climate Change, The Geneva Papers on Risk and Insurance – Issues and Practice, 34, 323-359

Minton, B. A., C. Schrand. 1999. The impact of cash flow volatility on discretionary investment and the costs of debt and equity financing. Journal of Financial Economics. 54 423-460.

Mulherin, J.H., and Boone, A.L. (2000) "Comparing Acquisitions and Divestures", Journal of Corporate Finance, vol. 6, no. 2, July 1, pp.117-139.

Moshirian, F., (1993), Determinants of International Financial Services, Journal of Banking and Finance, 17, 1-14.

Moshirian, F., (1994), What Determines the Supply of International Financial Services, Journal of Banking and Finance, 18, 495-504.

Moshirian, F., (2001), International Investment in Financial Services, Journal of Banking and Finance, 25, 317-337.

Moshirian, F., (2009), Can an Asia Pacific Community, similar to the European Community, emerge?, Journal of Banking and Finance, 33, 2-8.

Moshirian, F. David Ng and Eliza Wu (2009), The value of stock analysts' recommendations: Evidence from emerging markets, International Review of Financial Analysis, 18, 74-83

Moshirian, F., Li, D. and A. Sim (2003), The Determinants of Intra-industry-trade in Insurance Services, Journal of Risk and Insurance, 70: 269-287.

Moshirian, F., (2004), Financial Services: Global Perspectives, Journal of Banking and Finance, 28, 269-276.

Moshirian, F., D. Li and A. Sim (2004), Intra-Industry trade in Financial Services, Journal of International Money and Finance, 24,1090-1107

Moshirian, F. and Q. Wu (2009), Banking industry volatility and banking crises, Journal of International Financial Markets, Institutions and Money, 19, 351-370

Myers, S. and N. Majluf (1984), Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have, Journal of Financial Economics 13, pp. 187-221

Octchere, I. and J. Chan (2003), Intra-industry effects of bank privatisation: A clinical analysis of the privatisation of the Commonwealth Bank of Australia, Journal of Banking and Finance 27, pp. 949-975

Organisation for Economic Co-operation and Development (OECD) 2000, Development Assistance Committee International Development Statistics, Country Classification

Pagano, M. and P. Volpin (2005), The Political Economy of Corporate Governance, Centre for Studies in Economics and Finance, Working Paper No. 29

Palepu, A.G. (1986) "Predicting Takeover Targets: A Methodological and Empirical Analysis", Journal of Accounting and Economics, vol. 8, no. 1, pp. 3-35.

Pasiouras. F., and Tanna. S. 2010. The prediction of bank acquisition targets with discriminant and logit analysis: Methodological issues and empirical evidence. Journal of Research in International Business and Finance 24, 39-61

Phillips, P., and P. Perron. "Testing for a Unit Root in time Series Regression." Biometrika, 75, 1988, pp.335-346.

Pilloff, Steven J., 1996, Performance changes and shareholder wealth creation associated with mergers of publicly traded banking institutions, Journal of Money, Credit, and Banking 28, 294-310.

Ravenscraft, D. and F. Scherer (1987), Mergers, Selloffs and Economic Efficiency, Brookings Institution, Washington, D.C.

Reeb, D., Kwok, C. and H. Baek (1998), Systematic Risk of the Multinational Corporation,

Journal of International Business Studies 29, pp 263-279

Rezaee, Zabihollah. 2011, Financial Services Firms: Governance, Regulations, Valuations, Mergers, and acquisitions, Third Edition, John Wiley and Sons – Business and Economics

Rosen, Richard, 2006, Merger momentum and investor sentiment: The stock market reaction to merger announcement, Journal of Business 79, 987-1017

Schneider, F. and B. Frey (1985), Economic and Political Determinants of Foreign Direct Investment, World Development, 13, pp. 161-75

Schwert, W. "Tests for Unit Roots: A Monte Carlo Investigation." Journal of Business and Economic Statistics, 7, 1989, pp.147-159.

Shahrur, H. (2005) "Industry Structure and Horizontal Takeovers: Analysis of Wealth Effects on Rivals, Suppliers, and Corporate Customers", Journal of Financial Economics, vol. 76, no. 1, April, pp.61-98.

Skipper, H. (2000), Financial Services Integration Worldwide: Promises and Pitfalls, Organisation for Economic Cooperation and Development

Song, M., and Walking, R. (2000) "Abnormal Returns to Rivals of Acquisition Targets: A Test of the 'Acquisition Probability Hypothesis'", Journal of Financial Economics, vol. 55, no. 2, February, pp. 143-171.

Stulz, R. 1996. Rethinking risk management, Journal of Applied Corporate Finance. Vol 9, No. 3, 8-24

Swiss Re, 2002, Bancassurance developments in Asia-shifting into a higher gear, Sigma No.7/2002

The Financial Services Fact Book, 2010, Insurance Information Institute

Travlos, N. (1987), Corporate Takeover Bids, Method of Payments, and Bidding Firms; Stock Returns, Journal of Finance 42, pp 943-963

Uysal, Vahap B., 2010. Deviation from the target capital structure and acquisition choices,

Journal of Financial Economics, In Press,

Vasconcellos, M. and R. Kish (1996), Factors Affecting Cross-Border Mergers and

Acquisitions: The Canada-US Experience, Global Finance Journal 7, pp 223-238

Vernon, R. (1966), International Investment and International Trade in the Product Cycle,

Quarterly Journal of Economics 80, pp. 190-207

Waheed, A. and I. Mathur (1995), Wealth Effects of Foreign Expansion by US Banks,

Journal of Banking and Finance 19, 823-842

Wright, F., Madura, J. and K. Wiant (2002), The Differential Effects of Agency Costs on

Multinational Corporations, Applied Financial Economics, 12, pp. 347-59

Ye, Dezhu, Donghui Li, Zhian Chen, Fariborz Moshirian, and Timothy Wee, Foreign

Participation in Life Insurance Markets: Evidence from OECD Countries, The
Geneva Papers, 34, 466-482

Zhang, H., 1995, Wealth effects of US bank takeovers, Applied Financial Economics 5, 329-
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APPENDIX A: additional regression results

Table AI: insurance firms learned by observing to improve financial performance, regression with alternative time trend variables

Selected OLS regression results from alternative specification of equation(5.8) in which the time trend variable is replaced with the technology trend variable such as Computer per capita, Mobile phones per 100 inhabitants and Internet users per capita. The sample consists of 76 M&As global insurance companies that were announced and completed between 1990 and 2007. In each regression, the dependent variables is Δ Post-merger performance. We combine the financial reports of the bidder and target firms 1 year before merger and calculate the financial performance, then compare it to the actual performance of the merged insurance firm 3 year after the transaction completed. We adjust both the financial performance of both before and after mergers with industry-level performance. That results in the Δ post merger performance. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt − Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. This calculation uses restated data for last year's values where available. CAR is the cumulative abnormal return for combined firms upon merger announcement. LBYO(x) is the number of insurance mergers that occur in the x years before merger announcement. Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Heteroskedastic-adjusted standard errors appear in Italic.

Δ Post-merger performance variables	Δ Premiums Earned ($mil)	Δ Interest Expense On Debt ($mil)	Δ Pretax Income ($mil)	Δ Tot. Debt % Tot. Capital&ST. Debt	Δ Total Debt % Common Equity	Δ Return On Equity - Total (%)	Δ Cash Flow/Sales	Δ Operating Profit Margin	Δ Pretax Margin	Δ Net Margin	Δ Return On Invested Capital
					Panel A: Time Trend Replaced with Computer per Capita						
LBYO(3)	-0.1380	0.0000	-0.0013	-0.0247	0.2431	-0.0101	0.0916	0.0603	0.0406	0.0256	-0.0069
	-1.48	*0.02*	*-0.52*	*-0.53*	*1.49*	*-0.70*	*1.97**	*2.82***	*1.99***	*1.39*	*-0.46*
Computer	-1.7775	0.0034	0.1336	-1.7133	6.7364	-0.3601	3.9994	1.8611	1.2754	0.7185	-0.6633
	-0.44	*1.05*	*0.97*	*-1.13*	*0.76*	*-0.49*	*2.64***	*2.35***	*1.68**	*0.97*	*-0.95*
LBYO(3)*Computer	1.4335	-0.0016	-0.0510	0.8370	-4.0724	0.2800	-2.3694	-1.2461	-0.8461	-0.4709	0.3563
	0.71	*-0.88*	*-0.80*	*0.97*	*-0.97*	*0.75*	*-2.59***	*-2.71***	*-1.9**	*-1.12*	*0.99*
					Panel B: Time Trend Replaced with Mobile phones per 100 inhabitants						
LBYO(3)	-0.0947	0.0000	-0.0023	-0.0094	0.1602	-0.0027	0.0310	0.0295	0.0196	0.0144	0.0012
	*-1.77**	*-0.58*	*-1.30*	*-0.33*	*1.74**	*-0.41*	*1.22*	*2.61***	*1.89**	*1.61*	*0.15*
mobile	-1.1656	0.0030	0.0938	-1.5386	7.4213	-0.3902	3.4855	1.7688	1.2122	0.6943	-0.5887
	-0.36	*1.04*	*0.86*	*-1.10*	*0.98*	*-0.63*	*2.51***	*2.44***	*1.73**	*1.06*	*-1.04*
LBYO(3)*mobile	0.9878	-0.0014	-0.0364	0.7636	-4.2246	0.2588	-1.9579	-1.1043	-0.7476	-0.4282	0.3075
	0.60	*-0.87*	*-0.68*	*0.96*	*-1.13*	*0.82*	*-2.4***	*-2.63***	*-1.84**	*-1.17*	*1.03*
					Panel C: Time Trend Replaced with Internet users per capita						
LBYO(3)	-0.1110	0.0000	-0.0029	-0.0090	0.1396	-0.0026	0.0387	0.0326	0.0225	0.0161	0.0025
	*-1.94**	*-0.67*	*-1.50*	*-0.30*	*1.54*	*-0.42*	*1.41*	*2.54***	*1.93**	*1.66**	*0.36*
internet	-2.1553	0.0021	0.0627	-1.3614	4.1366	-0.1545	3.0323	1.4525	1.0298	0.6255	-0.4403
	-0.74	*0.87*	*0.67*	*-1.16*	*0.66*	*-0.29*	*2.73***	*2.44***	*1.81**	*1.15*	*-0.85*
LBYO(3)*internet	1.4665	-0.0010	-0.0202	0.7152	-2.6259	0.1547	-1.8265	-0.9776	-0.6851	-0.4058	0.2343
	0.99	*-0.77*	*-0.47*	*1.03*	*-0.87*	*0.57*	*-2.64***	*-2.74***	*-1.99***	*-1.29*	*0.88*

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

Table AII: insurance firms learned by observing to improve financial performance, regression with alternative information state variables

Selected OLS regression results from alternative specifications of equation (5.8) in which the information state variable LBYO(3) is replaced with alternative definitions of the information state. The sample consists of 76 M&As global insurance companies that were announced and completed between 1990 and 2007. In each regression, the dependent variables is Δ Post-merger performance. We combine the financial reports of the bidder and target firms 1 year before merger and calculate the financial performance, then compare it to the actual performance of the merged insurance firm 3 year after the transaction completed. We adjust both the financial performance of both before and after mergers with industry-level performance. That results in the Δ post merger performance. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt − Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. This calculation uses restated data for last year's values where available. LBYO(x) is the number of insurance mergers that occur in the x years before merger announcement. Heteroskedastic-adjusted standard errors appear in Italic.

Δ Post merger performance variables	Δ Premiums Earned ($mil)	Δ Interest Expense On Debt ($mil)	Δ Pretax Income ($mil)	Δ Tot. Debt % Tot. Capital&ST. Debt	Δ Total Debt % Common Equity	Δ Return On Equity - Total (%)	Δ Cash Flow/Sales	Δ Operating Profit Margin	Δ Pretax Margin	Δ Net Margin	Δ Return On Invested Capital
				Panel A: LBYO(3) replaced with weighted LBYO							
weighted LBYO	-0.6955	-0.0004	-0.0104	0.0083	0.7614	-0.0380	0.1606	0.1263	0.0743	0.0535	0.0001
	-2.1**	*-1.26*	*-1.01*	*0.03*	*1.57*	*-1.10*	*1.11*	*2.02***	*1.30*	*1.12*	*0.00*
weighted LBYO*Time	49.4371	0.0266	0.0312	3.2410	-63.5736	5.2532	-19.2467	-9.0686	-5.1271	-3.0090	3.2810
	1.7*	*0.84*	*0.03*	*0.13*	*-1.43*	*1.28*	*-1.55*	*-1.74**	*-0.99*	*-0.65*	*0.85*
				Panel B: LBYO(3) replaced with LBYO(1)							
LBYO(1)	-0.7217	-0.0004	-0.0123	0.1432	0.6843	-0.0299	0.1174	0.1201	0.0658	0.0486	0.0142
	-2.22**	*-1.56*	*-1.25*	*0.62*	*1.49*	*-0.99*	*0.91*	*2.03***	*1.24*	*1.10*	*0.36*
LBYO(1)*Time	52.2274	0.0359	0.4645	-10.5110	-53.8232	3.7745	-12.9843	-7.7060	-4.1038	-2.5862	1.1516
	1.95*	*1.42*	*0.55*	*-0.51*	*-1.54*	*1.21*	*-1.29*	*-1.77**	*-0.98*	*-0.70*	*0.36*
				Panel C: LBYO(3) replaced with LBYO(2)							
LBYO(2)	-0.3153	-0.0001	-0.0034	-0.0601	0.4278	-0.0214	0.1071	0.0680	0.0398	0.0309	-0.0082
	-1.85*	*-0.76*	*-0.62*	*-0.55*	*1.51*	*-1.00*	*1.34*	*1.92**	*1.18*	*1.11*	*-0.36*
LBYO(2)*Time	19.2443	0.0053	-0.2165	8.5145	-37.0686	2.8930	-11.0422	-4.7526	-2.4072	-1.7254	2.4777
	1.24	*0.27*	*-0.38*	*0.83*	*-1.23*	*1.10*	*-1.55*	*-1.52*	*-0.77*	*-0.64*	*1.00*
				Panel D: LBYO(3) replaced with LBYO(4)							
LBYO(4)	-0.2214	-0.0001	-0.0013	-0.0324	0.2097	-0.0164	0.0957	0.0580	0.0374	0.0251	-0.0056
	-1.99**	*-0.58*	*-0.41*	*-0.32*	*1.34*	*-1.08*	*1.76**	*2.39***	*1.61*	*1.29*	*-0.36*
LBYO(4)*Time	17.3760	-0.0003	-0.2964	4.7351	-14.0788	2.3456	-12.6135	-5.7536	-3.6564	-2.0980	1.7903
	1.58	*-0.03*	*-0.73*	*0.45*	*-0.78*	*1.17*	*-2.33***	*-2.25***	*-1.45*	*-0.96*	*0.93*

				Panel E: LBYO(3) replaced with LBYO(5)							
LBYO(5)	-0.1455	0.0000	-0.0016	-0.0340	0.1889	-0.0127	0.0848	0.0467	0.0313	0.0198	-0.0051
	*-1.74**	*-0.28*	*-0.64*	*-0.65*	*1.48*	*-1.16*	*1.87**	*2.47***	*1.8**	*1.33*	*-0.48*
LBYO(5)*Time	8.9506	-0.0053	-0.2371	5.1200	-14.0943	1.9778	-11.8342	-5.0902	-3.4432	-1.7879	1.7770
	1.02	*-0.65*	*-0.84*	*0.99*	*-0.88*	*1.31*	*-2.59***	*-2.47***	*-1.76**	*-1.03*	*1.39*
				Panel F: LBYO(3) replaced with LBYO(6)							
LBYO(6)	-0.1157	0.0000	-0.0025	-0.0053	0.1410	-0.0068	0.0615	0.0346	0.0238	0.0152	0.0004
	*-1.72**	*-0.65*	*-1.17*	*-0.13*	*1.42*	*-0.88*	*1.60*	*2.35***	*1.82**	*1.38*	*0.06*
LBYO(6)*Time	5.7565	-0.0037	-0.1094	2.4797	-9.2376	1.3883	-9.3654	-4.3065	-2.9684	-1.4345	1.1370
	0.73	*-0.56*	*-0.52*	*0.67*	*-0.81*	*1.21*	*-2.24***	*-2.52***	*-1.88**	*-1.01*	*1.14*
				Panel G: LBYO(3) replaced with LBYO(7)							
LBYO(7)	-0.1023	-0.0001	-0.0031	0.0034	0.1230	-0.0023	0.0353	0.0243	0.0169	0.0122	0.0043
	*-1.93**	*-1.14*	*-1.51*	*0.11*	*1.44*	*-0.44*	*1.21*	*2.2***	*1.79**	*1.57*	*0.71*
LBYO(7)*Time	4.1138	-0.0019	-0.0186	1.8195	-8.5377	0.9789	-6.5796	-3.5934	-2.4415	-1.1502	0.7077
	0.64	*-0.33*	*-0.10*	*0.62*	*-0.98*	*1.13*	*-1.88**	*-2.67***	*-2.01***	*-1.02*	*0.87*

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

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Table AIII: market learned by observing in respective to financial performance, regression with alternative information state variables

Selected OLS regression results from alternative specifications of equation (5.10) in which the information state variable LBYO(3) is replaced with alternative definitions of the information state. The sample consists of 76 M&As global insurance companies that were announced and completed between 1990 and 2007.The dependent variable is CAR, the cumulative abnormal return for combined firms upon merger announcement. We combine the financial reports of the bidder and target firms 1 year before merger and calculate the financial performance, then compare it to the actual performance of the merged insurance firm 3 year after the transaction completed. We adjust both the financial performance of both before and after mergers with industry-level performance. That results in the Δ post merger performance. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt – Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. This calculation uses restated data for last year's values where available. LBYO(x) is the number of insurance mergers that occur in the x years before merger announcement. Heteroskedastic-adjusted standard errors appear in Italic.

Δ Post-merger performance variables	Δ Premiums Earned ($mil)	Δ Interest Expense On Debt ($mil)	Δ Pretax Income ($mil)	Δ Tot. Debt % Tot. Capital&ST. Debt	Δ Total Debt % Common Equity	Δ Return On Equity - Total (%)	Δ Cash Flow/Sales	Δ Operating Profit Margin	Δ Pretax Margin	Δ Net Margin	Δ Return On Invested Capital
				Panel A: LBYO(3) replaced with LBYO(1)							
Δ Post-merger performance	0.0000	0.0000	0.0000	-0.0110	-0.0002	-0.0013	-0.0031	0.0016	-0.0006	0.0012	-0.0011
	-0.29	*0.13*	*-0.04*	*-1.11*	*-0.85*	*-0.40*	*-0.76*	*0.61*	*-0.18*	*0.50*	*-0.21*
LBYO(1)	0.0001	0.0001	0.0002	-0.0004	0.0002	0.0001	0.0000	0.0002	0.0002	0.0002	0.0002
	1.39	*1.85**	*1.94**	*-0.95*	*1.63*	*1.03*	*0.29*	*2.01***	*1.49*	*2.01***	*1.21*
LBYO(1)*Δ performance	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.26	*-0.22*	*-0.08*	*1.08*	*0.62*	*0.46*	*0.75*	*-0.70*	*0.17*	*-0.48*	*0.19*
				Panel B: LBYO(3) replaced with LBYO(2)							
Δ Post-merger performance	0.0000	0.0000	0.0000	-0.0069	0.0000	-0.0008	-0.0020	0.0015	-0.0003	0.0009	-0.0024
	-0.53	*0.28*	*-0.42*	*-1.07*	*-0.02*	*-0.33*	*-0.57*	*0.55*	*-0.11*	*0.39*	*-0.58*
LBYO(2)	0.0001	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	*2.26***	*1.89**	*2.67***	*-0.18*	*2.36***	*2.14***	*1.16*	*2.76***	*2.48***	*3.06***	*1.97***
LBYO(2)*Δ perf	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.54	*-0.32*	*0.36*	*0.92*	*-0.28*	*0.34*	*0.54*	*-0.66*	*0.07*	*-0.42*	*0.53*
				Panel C: LBYO(3) replaced with weighted LBYO							
Δ Post-merger performance	0.0000	0.0000	0.0000	-0.0068	-0.0001	-0.0010	-0.0036	0.0016	-0.0006	0.0010	-0.0023
	-0.54	*0.17*	*-0.36*	*-0.80*	*-0.20*	*-0.37*	*-0.87*	*0.62*	*-0.20*	*0.43*	*-0.49*
weighted LBYO	0.0002	0.0001	0.0002	-0.0002	0.0002	0.0002	0.0001	0.0003	0.0002	0.0002	0.0002
	*1.84**	*1.92**	*2.4***	*-0.40*	*2.1***	*1.85**	*0.68*	*2.59***	*2.14***	*2.7***	*1.68**
weighted LBYO*Δ perf	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.54	*-0.21*	*0.31*	*0.72*	*-0.04*	*0.40*	*0.85*	*-0.72*	*0.18*	*-0.43*	*0.45*

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

Table AIV: insurance firm learned by observing to improve risk management, regression with alternative time trend variables

Selected OLS regression results from alternative specification of equation(5.9) in which the time trend variable is replaced with the technology trend variable such as Computer per capita, Mobile phones per 100 inhabitants and Internet users per capita. The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Total Risk - Relative to World Financial Index is the standard deviation of share price in relative to the World Financial Index. Total Risk - Relative to Home Financial Index is the standard deviation of share price in relative to the Financials Index of the acquirer's home country. Beta Risk - Relative to World Financial Index is the systematic risk of the firm against the World Financial Index. Beta Risk - Relative to Home Financial Index is the systematic risk of the firm against the Financial Index in acquirer's home country. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt − Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. LBYO(x) measures the number of insurance M&As that happen during x years before announcement. Weighted LBYO use a logistic distribution to make mergers in closer years having more significant factor.Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Heteroskedastic-adjusted standard errors appear in Italic.

	Table AIV (section 1) - Financial Performance Risk								
Δ Risk variables	Δ Volatilities-Premiums Earned	Δ Volatilities-Interest Expense On Debt	Δ Volatilities-Pretax Income	Δ Volatilities-Return On Equity - Total (%)	Δ Volatilities-Cash Flow/Sales	Δ Volatilities-Operating Profit Margin	Δ Volatilities-Pretax Margin	Δ Volatilities-Net Margin	Δ Volatilities-Return On Invested Capital
Panel A: Time Trend Replaced with Computer per Capita									
LBYO(2)	1045	-339	-9020	-4952	-254	-44	-1798	-6115	-219698
	1.28	*-1.60*	*-1.56*	*-1.10*	*-0.15*	*-0.38*	*-0.97*	*-0.93*	*-1.06*
Computer	-18	-27	-500	-150	-19	-7	-97	-269	-8590
	-0.24	*-1.7**	*-1.34*	*-0.40*	*-0.18*	*-1.00*	*-0.80*	*-0.50*	*-0.78*
LBYO(3)*Computer	-14774	9616	135737	155552	-4987	1951	27250	217220	2820198
	-1.37	*1.89**	*1.43*	*1.53*	*-0.12*	*0.93*	*0.89*	*1.50*	*0.94*
Panel B: Time Trend Replaced with Mobile phones per 100 inhabitants									
LBYO(2)	622	-102	-5389	-488	-378	8	-1107	44	-145790
	0.84	*-1.00*	*-1.56*	*-0.19*	*-0.49*	*0.12*	*-0.96*	*0.01*	*-1.09*
mobile	7	-32	-535	-110	-12	-8	-115	-220	-9860
	0.10	*-1.76**	*-1.26*	*-0.26*	*-0.10*	*-0.99*	*-0.83*	*-0.38*	*-0.81*
LBYO(2)*mobile	-16728	8985	122586	122682	-5881	1799	27005	173819	2660875
	-1.40	*1.88**	*1.34*	*1.29*	*-0.15*	*0.93*	*0.91*	*1.28*	*0.95*

	Panel C: Time Trend Replaced with Internet users per capita								
LBYO(2)	854	-185	-6575	-3987	-535	6	-1063	-4808	-146556
	1.11	*-1.47*	*-1.73**	*-1.35*	*-0.46*	*0.07*	*-0.91*	*-1.10*	*-1.04*
internet	-56	-41	-623	-676	-51	-6	-70	-1015	-6660
	-0.69	*-2.06***	*-1.60*	*-1.44*	*-0.31*	*-0.58*	*-0.66*	*-1.52*	*-0.54*
LBYO(3)*internet	-6869	9632	126184	219124	5039	1230	15396	308039	1744178
	-0.87	*2.05***	*1.71**	*2.28***	*0.11*	*0.51*	*0.80*	*2.25***	*0.73*

Table AIV (Section 2)-Beta Risk and Total Risk

Δ Risk variables	Change of Beta - world financials	Change of Beta - home financials	Change of Total Risk - world financials	Change of Total Risk - home financials
Panel A: Time Trend Replaced with Computer per Capita				
LBYO(2)	0.7249	0.0148	22.4741	24.5513
	1.01	*0.02*	*0.57*	*0.66*
Computer	0.0212	0.0016	-1.4423	-1.4118
	0.43	*0.02*	*-0.55*	*-0.52*
LBYO(3)*Computer	-12.4685	1.7874	1.7733	187.6923
	-0.83	*0.09*	*0.00*	*0.24*
Panel B: Time Trend Replaced with Mobile phones per 100 inhabitants				
LBYO(2)	0.1847	-0.1988	28.6926	34.9868
	0.79	*-0.72*	*1.95**	*2.42***
mobile	-0.0040	-0.0832	0.4833	-0.3006
	-0.10	*-1.40*	*0.13*	*-0.11*
LBYO(2)*mobile	-3.2950	19.5509	-421.2430	-112.4740
	-0.36	*1.69**	*-0.46*	*-0.19*
Panel C: Time Trend Replaced with Internet users per capita				
LBYO(2)	0.4628	0.3111	9.9781	3.0848
	0.90	*0.48*	*0.37*	*0.10*
internet	0.0182	0.0316	-2.8731	-3.2341
	0.32	*0.44*	*-1.05*	*-1.12*
LBYO(3)*internet	-9.2015	-5.9320	357.5859	552.1777
	-0.67	*-0.37*	*0.51*	*0.73*

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

Table AV: insurance firms learned by observing in respective to risk management, regression with alternative information state variables

Selected OLS regression results from alternative specifications of equation (5.9) in which the information state variable LBYO(2) is replaced with alternative definitions of the information state. The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Total Risk - Relative to World Financial Index is the standard deviation of share price in relative to the World Financial Index. Total Risk - Relative to Home Financial Index is the standard deviation of share price in relative to the Financials Index of the acquirer's home country. Beta Risk - Relative to World Financial Index is the systematic risk of the firm against the World Financial Index. Beta Risk - Relative to Home Financial Index is the systematic risk of the firm against the Financial Index in acquirer's home country. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt – Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. LBYO(x) measures the number of insurance M&As that happen during x years before announcement. Weighted LBYO use a logistic distribution to make mergers in closer years having more significant factor.Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Activity focus is the correlation of the pre-merger stock returns for the acquiring and target insurance firms. Country M&As is the portion of all insurance firms that were merged in the acquired insurer's home country during the merger year. Equal Size ranges from near 0 to 1 which indicates relative size between target and acquiring firms. Change of Herf is the change in the Herfindahl index of the insurance industry weighted by revenue in the target home country one year before and after merger. Hot market is equal to average cumulative abnormal return of public target insurance firms during the one year period before every merger announcement day in the sample in the target home country. Acquirer size is the natural log of acquirer's total assets in US dollars before merger. Megamerger is a dummy variable equals to 1 if both acquiring and target firms' total assets are more than 1 billion USD, 0 otherwise. Postmerger growth is insurer's asset growth rate over the 3 years post-merger, and it is normalised with the industry growth rate. Payment is a dummy variable if the transaction is paid by cash only, 0 otherwise. Target equity-to-assets is a book value ratio for the acquired insurance firm prior to the merger. Cross-border deal is a dummy variable if the acquirer and target are based in different countries, 0 otherwise. GDP growth is the acquirer's home country's gross domestic growth rate of the year of merger announcement. Learning-by-doing (LBYD) is the number of other insurance mergers made during the previous 1095 days (3 years) by the acquiring firm. Heteroskedastic-adjusted standard errors appear in Italic.

Table AV (Section 1) - Change in Financial Performance Risk

Δ Risk variables	Δ Volatilities-Premiums Earned	Δ Volatilities-Interest Expense On Debt	Δ Volatilities-Pretax Income	Δ Volatilities-Return On Equity - Total (%)	Δ Volatilities-Cash Flow/Sales	Δ Volatilities-Operating Profit Margin	Δ Volatilities-Pretax Margin	Δ Volatilities-Net Margin	Δ Volatilities-Return On Invested Capital
Panel A: LBYO(2) replaced with weighted LBYO									
weighted LBYO	3025	-1041	-21787	-30000	505	-186	-3331	-41005	-412929
	1.54	*-1.63*	*-1.72**	*-2.35***	*0.10*	*-0.66*	*-0.94*	*-2.25***	*-0.97*
weighted LBYO*Time	-262	128	1910	3818	-170	31	257	5451	27840
	-1.62	*1.54*	*1.66**	*2.59***	*-0.26*	*1.03*	*0.82*	*2.61***	*0.77*
Panel B: LBYO(2) replaced with LBYO(1)									
LBYO(1)	3109	-1154	-20564	-36035	184	-212	-3034	-49730	-354223
	1.59	*-1.88**	*-1.73**	*-2.76***	*0.03*	*-0.76*	*-0.93*	*-2.68***	*-0.93*
LBYO(1)*Time	-291	123	1846	4129	-86	28	252	5873	23510
	-1.47	*1.61*	*1.70**	*2.95***	*-0.13*	*0.96*	*0.83*	*2.94***	*0.73*
Panel C: LBYO(2) replaced with LBYO(3)									
LBYO(3)	990	-27	-5439	-1124	-217	23	-1036	-842	-79378
	1.23	*-0.16*	*-1.42*	*-0.49*	*-0.31*	*0.34*	*-0.81*	*-0.24*	*-0.90*
LBYO(3)*Time	-77	8	471	435	-37	5	65	617	8382
	-1.45	*0.52*	*1.56*	*1.49*	*-0.32*	*0.84*	*0.86*	*1.46*	*0.89*
Panel D: LBYO(2) replaced with LBYO(4)									
LBYO(4)	1170	-106	-6921	-3346	133	16	-1248	-4110	-178402
	1.34	*-0.60*	*-1.59*	*-1.05*	*0.11*	*0.20*	*-0.91*	*-0.85*	*-1.06*
LBYO(4)*Time	-91	21	660	761	-65	8	97	1087	13747
	-1.50	*0.90*	*1.60*	*1.76**	*-0.36*	*1.01*	*0.90*	*1.76**	*0.96*
Panel E: LBYO(2) replaced with LBYO(5)									
LBYO(5)	992	-38	-5714	-1628	-99	24	-1088	-1595	-78387
	1.26	*-0.23*	*-1.46*	*-0.69*	*-0.13*	*0.35*	*-0.84*	*-0.44*	*-0.87*
LBYO(5)*Time	-82	10	498	500	-37	6	67	711	8684
	-1.47	*0.59*	*1.56*	*1.58*	*-0.28*	*0.90*	*0.85*	*1.55*	*0.87*
Panel F: LBYO(2) replaced with LBYO(6)									
LBYO(6)	483	-24	-4369	-603	-352	17	-807	-4	-63942
	0.84	*-0.14*	*-1.35*	*-0.27*	*-0.50*	*0.25*	*-0.76*	*0.00*	*-0.89*
LBYO(6)*Time	-55	5	347	291	-28	5	43	419	6629
	-1.30	*0.40*	*1.43*	*1.21*	*-0.30*	*0.91*	*0.77*	*1.21*	*0.87*
Panel G: LBYO(2) replaced with LBYO(7)									
LBYO(7)	300	1	-3778	261	-356	51	-659	1205	-84708
	0.72	*0.00*	*-1.33*	*0.12*	*-0.57*	*0.82*	*-0.73*	*0.39*	*-0.97*
LBYO(7)*Time	-44	4	258	198	-25	5	30	295	4897
	-1.30	*0.32*	*1.32*	*0.98*	*-0.34*	*1.06*	*0.70*	*1.02*	*0.83*

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Δ Risk variables	Change of Beta - world financials	Change of Beta - home financials	Change of Total Risk - world financials	Change of Total Risk - home financials
Panel A: LBYO(2) replaced with weighted LBYO				
weighted LBYO	2.1955	-0.4193	4.0767	51.3187
	*1.98***	*-0.29*	*0.06*	*0.83*
weighted LBYO*Time	-0.2637	0.0568	6.7451	2.0208
	*-2.14***	*0.35*	*0.81*	*0.27*
Panel B: LBYO(2) replaced with LBYO(1)				
LBYO(1)	2.1803	-0.2269	2.6100	61.0061
	*2.08***	*-0.19*	*0.04*	*1.08*
LBYO(1)*Time	-0.2545	0.04	5.6607	-0.4351
	*-2.34***	*0.32*	*0.73*	*-0.07*
Panel C: LBYO(2) replaced with LBYO(3)				
LBYO(3)	0.3098	0.2880	9.2553	13.7414
	0.94	*0.65*	*0.53*	*0.78*
LBYO(3)*Time	-0.0408	-0.0522	1.5044	1.0988
	-0.89	*-0.90*	*0.59*	*0.43*
Panel D: LBYO(2) replaced with LBYO(4)				
LBYO(4)	0.9145	0.2362	-28.2358	-3.4614
	*2***	*0.38*	*-0.88*	*-0.12*
LBYO(4)*Time	-0.1183	-0.0385	6.8004	3.6748
	*-1.99***	*-0.51*	*1.52*	*0.99*
Panel E: LBYO(2) replaced with LBYO(5)				
LBYO(5)	0.3123	0.2657	8.8590	12.9675
	0.90	*0.55*	*0.46*	*0.69*
LBYO(5)*Time	-0.0396	-0.0472	1.558	1.2366
	-0.84	*-0.75*	*0.58*	*0.47*
Panel F: LBYO(2) replaced with LBYO(6)				
LBYO(6)	0.1442	0.2012	20.0607	22.5713
	0.54	*0.60*	*1.49*	*1.8**
LBYO(6)*Time	-0.0182	-0.048	-0.2821	-0.3644
	-0.43	*-1.00*	*-0.14*	*-0.19*
Panel G: LBYO(2) replaced with LBYO(7)				
LBYO(7)	0.0800	0.0452	21.6351	23.7232
	0.43	*0.21*	*2.18***	*2.6***
LBYO(7)*Time	-0.0076	-0.0382	-1.0799	-0.9575
	-0.20	*-0.99*	*-0.63*	*-0.65*

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

Table AVI: market learned by observing in respective to risk management, regression with alternative information sate variables

Selected OLS regression results from alternative specifications of equation (5.11) in which the information state variable LBYO(3) is replaced with alternative definitions of the information states. The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Total Risk - Relative to World Financial Index is the standard deviation of share price in relative to the World Financial Index. Total Risk - Relative to Home Financial Index is the standard deviation of share price in relative to the Financials Index of the acquirer's home country. Beta Risk - Relative to World Financial Index is the systematic risk of the firm against the World Financial Index. Beta Risk - Relative to Home Financial Index is the systematic risk of the firm against the Financial Index in acquirer's home country. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt – Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. LBYO(x) measures the number of insurance M&As that happen during x years before announcement. Weighted LBYO use a logistic distribution to make mergers in closer years having more significant factor.Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Activity focus is the correlation of the pre-merger stock returns for the acquiring and target insurance firms. Country M&As is the portion of all insurance firms that were merged in the acquired insurer's home country during the merger year. Equal Size ranges from near 0 to 1 which indicates relative size between target and acquiring firms. Change of Herf is the change in the Herfindahl index of the insurance industry weighted by revenue in the target home country one year before and after merger. Hot market is equal to average cumulative abnormal return of public target insurance firms during the one year period before every merger announcement day in the sample in the target home country. Acquirer size is the natural log of acquirer's total assets in US dollars before merger. Megamerger is a dummy variable equals to 1 if both acquiring and target firms' total assets are more than 1 billion USD, 0 otherwise. Postmerger growth is insurer's asset growth rate over the 3 years post-merger, and it is normalised with the industry growth rate. Payment is a dummy variable if the transaction is paid by cash only, 0 otherwise. Target equity-to-assets is a book value ratio for the acquired insurance firm prior to the merger. Cross-border deal is a dummy variable if the acquirer and target are based in different countries, 0 otherwise. GDP growth is the acquirer's home country's gross domestic growth rate of the year of merger announcement. Learning-by-doing (LBYD) is the number of other insurance mergers made during the previous 1095 days (3 years) by the acquiring firm.

Table AVI (Section 1) - Change in Beta Risk and Total Risk				
Δ Risk Variables	Change of Beta - world financials	Change of Beta - home financials	Change of Total Risk - world financials	Change of Total Risk - home financials
Panel A: LBYO(3) replaced with LBYO(1)				
Δ Risk	0.0689	-0.2155	0.0024	0.0042
	0.30	-2.34**	1.40	1.59
LBYO(1)	0.0002	0.0002	0.0001	0.0001
	2.31**	2.31**	1.85*	1.41
LBYO(1)*Δ Risk.	-0.0001	0.0006	0.0000	0.0000
	-0.24	2.29**	-1.21	-1.35
Panel B: LBYO(3) replaced with LBYO(2)				
Δ Risk	-0.0418	-0.1633	0.0037	0.0040
	-0.20	-1.85*	0.80	0.94
LBYO(2)	0.0001	0.0001	0.0001	0.0001
	3.03**	3.1**	2.52**	2.12**
LBYO(2)*Δ Risk.	0.0001	0.0002	0.0000	0.0000
	0.29	1.84*	-0.73	-0.81

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Table AVI (Section 2) - Change in Financial Performance Risk

Δ Risk Variables	Δ Volatilty Interest Expense On Debt	Δ Volatilty Pretax Income	Δ Volatilty Total Debt % Common Equity	Δ Volatilty Return On Equity - Total (%)	Δ Volatilty Cash Flow/Sales	Δ Volatilty Operating Profit Margin	Δ Volatilty Pretax Margin	Δ Volatilty Net Margin	Δ Volatilty Return On Invested Capital
Panel A: LBYO(3) replaced with LBYO(1)									
Δ Risk	-0.0472	0.0000	-0.0401	-0.0001	0.1144	-0.0106	0.0181	-0.0001	0.0000
	-0.47	0.02	-0.48	-0.01	1.51	-0.19	0.23	-0.01	0.03
LBYO(1)	0.0009	0.0003	-0.0001	0.0003	-0.0047	0.0003	0.0005	0.0003	0.0003
	0.52	0.26	-0.23	2.19**	-1.21	2.23**	0.52	1.86*	1.95*
LBYO(1)*Δ Risk.	0.0001	0.0000	0.0001	0.0000	-0.0003	0.0000	0.0000	0.0000	0.0000
	0.48	-0.02	0.48	0.01	-1.50	0.19	-0.23	0.00	-0.03
Panel B: LBYO(3) replaced with LBYO(2)									
Δ Risk	0.0142	0.0014	-0.0281	-0.0268	-0.2082	-0.0001	0.0042	0.0025	0.0000
	0.44	0.07	-0.65	-0.17	-0.16	0.00	0.01	0.26	0.30
LBYO(2)	0.0000	0.0010	-0.0001	0.0002	0.0074	0.0002	0.0002	0.0002	0.0002
	-0.05	0.08	-0.48	0.83	0.18	2.75**	0.07	2.53**	2.63**
LBYO(2)*Δ Risk.	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
	-0.44	-0.07	0.65	0.17	0.16	0.00	-0.01	-0.27	-0.30
Panel C: LBYO(3) replaced with weighted LBYO									
Δ Risk	0.0607	-0.0003	-0.0273	-0.0059	1.2771	-0.0008	0.0047	0.0034	0.0000
	0.23	-0.19	-0.64	-0.22	0.10	0.00	0.07	0.25	0.28
weighted LBYO	-0.0010	0.0000	-0.0002	0.0003	-0.0556	0.0003	0.0003	0.0003	0.0003
	-0.21	0.01	-0.54	2.18**	-0.09	2.19**	0.52	2.21**	2.48**
weighted LBYO*Δ Risk.	-0.0001	0.0000	0.0001	0.0000	-0.0027	0.0000	0.0000	0.0000	0.0000
	-0.23	0.19	0.63	0.22	-0.10	0.00	-0.08	-0.25	-0.28

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

Table AVII Cross-sectional Analysis of Changes in Performance

This table reports the ordinary least squares regression results for equation (5.8). The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Total Risk - Relative to World Financial Index is the standard deviation of share price in relative to the World Financial Index. Total Risk - Relative to Home Financial Index is the standard deviation of share price in relative to the Financials Index of the acquirer's home country. Beta Risk - Relative to World Financial Index is the systematic risk of the firm against the World Financial Index. Beta Risk - Relative to Home Financial Index is the systematic risk of the firm against the Financial Index in acquirer's home country. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt – Interest Capitalised)*(1-Tax Rate)))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. LBYO(x) measures the number of insurance M&As that happen during x years before announcement. Weighted LBYO use a logistic distribution to make mergers in closer years having more significant factor. Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Activity focus is the correlation of the pre-merger stock returns for the acquiring and target insurance firms. Country M&As is the portion of all insurance firms that were merged in the acquired insurer's home country during the merger year. Equal Size ranges from near 0 to 1 which indicates relative size between target and acquiring firms. Change of Herf is the change in the Herfindahl index of the insurance industry weighted by revenue in the target home country one year before and after merger. Hot market is equal to average cumulative abnormal return of public target insurance firms during the one year period before every merger announcement day in the sample in the target home country. Acquirer size is the natural log of acquirer's total assets in US dollars before merger. Megamerger is a dummy variable equals to 1 if both acquiring and target firms' total assets are more than 1 billion USD, 0 otherwise. Postmerger growth is insurer's asset growth rate over the 3 years post-merger, and it is normalised with the industry growth rate. Payment is a dummy variable if the transaction is paid by cash only, 0 otherwise. Target equity-to-assets is a book value ratio for the acquired insurance firm prior to the merger. Cross-border deal is a dummy variable if the acquirer and target are based in different countries, 0 otherwise. GDP growth is the acquirer's home country's gross domestic growth rate of the year of merger announcement. Learning-by-doing (LBYD) is the number of other insurance mergers made during the previous 1095 days (3 years) by the acquiring firm. Heteroskedastic-adjusted standard errors appear in Italic.

Dependent Variable	Δ Premiums Earned ($mil)	Δ Interest Expense On Debt ($mil)	Δ Pretax Income ($mil)	Δ Tot. Debt % Tot. Capital&ST. Debt	Δ Total Debt % Common Equity	Δ Return On Equity - Total (%)	Δ Cash Flow/Sales	Δ Operating Profit Margin	Δ Pretax Margin	Δ Net Margin	Δ Return On Invested Capital
Constant	156.9809	0.0578	-0.3883	21.7903	-521.2020	38.5922	-129.7350	-55.3947	-16.9684	1.4111	36.7226
	1.13	0.52	-0.09	0.29	-2.16**	1.69*	-1.67*	-1.61	-0.56	0.06	1.59
LBYO(3)	-130.3630	-0.0218	-1.5767	-21.2599	192.3308	-10.0726	80.1146	43.5792	29.9041	18.9951	-2.9629
	-1.63	-0.31	-0.69	-0.45	1.53	-1.00	1.85*	2.43**	1.83*	1.37	-0.30
Time	-8.8261	0.0128	0.6328	-7.6156	25.7501	-2.4188	19.4099	7.1860	5.1644	2.6475	-2.8408
	-0.52	0.94	1.15	-1.01	0.79	-0.89	2.68**	2.17**	1.67*	0.92	-1.23
LBYO(3)*Time	6.9075	-0.0054	-0.2377	3.8065	-15.6200	1.6044	-11.2031	-4.8005	-3.3585	-1.7561	1.4606
	0.81	-0.71	-0.91	0.84	-1.00	1.17	-2.54**	-2.41**	-1.79*	-1.06	1.25
Activity focus	-12.4225	0.0107	0.0421	8.6672	-27.5819	14.2067	1.4225	-2.4929	-0.6773	-1.4197	14.7370
	-0.42	0.33	0.04	0.99	-0.61	2.3**	0.14	-0.28	-0.09	-0.22	2.6**
Country M&As	-708.2250	-0.2402	-18.6708	5.4861	220.0637	-14.1802	-113.4920	-48.9404	-34.6948	-34.1076	-11.0407
	-2.21**	-1.50	-1.8*	0.25	1.22	-0.96	-3.16**	-2.16**	-1.7*	-1.97*	-0.78
Equal size	-0.2993	-0.0350	-0.3388	1.3043	-7.3869	-0.0846	-6.7482	-0.2474	-2.3194	-2.5601	-0.4096
	-0.01	-0.89	-0.29	0.08	-0.19	-0.02	-0.72	-0.03	-0.33	-0.45	-0.09
Change of Herf.	-41.7424	-0.0472	-1.4894	-29.5474	-105.9830	-3.2531	5.8829	3.9423	2.8218	3.6279	-2.7182
	-1.56	-1.96*	-1.50	-3.05**	-2.23**	-0.71	0.61	0.51	0.40	0.58	-0.63
Hot market	-220.8390	0.1382	0.1162	217.4406	-1129.7500	-22.3686	47.2119	-158.4390	-130.7980	-123.0520	9.8343
	-0.60	0.24	0.01	0.46	-1.38	-0.33	0.18	-1.78*	-1.65*	-1.83*	0.19
Acquirer size	6.7621	0.0018	0.3063	1.4878	10.8518	-0.6626	-0.1182	0.0049	-1.2100	-1.4185	-0.8561
	1.04	0.20	1.09	0.65	1.53	-0.82	-0.07	0.00	-0.86	-1.19	-1.02
Megamerger	-55.1670	-0.0564	-1.6162	-12.0249	-35.5733	-6.2118	-6.6208	-4.0566	-3.6966	-3.3370	-6.6558
	-1.63	-1.7*	-1.38	-1.12	-1.11	-1.57	-0.86	-0.70	-0.67	-0.71	-1.79*
Postmerger growth	-9.5265	-0.0137	-0.0801	5.8804	-4.4443	-0.2437	4.0688	1.9313	1.2059	-0.5415	-1.8867
	-0.94	-1.25	-0.29	0.94	-0.24	-0.14	1.28	0.72	0.49	-0.23	-1.00
Payment	37.6874	0.0122	0.4371	-5.4647	-9.7313	4.0014	5.7914	2.3206	2.6581	2.9644	2.5495
	1.84*	1.03	0.95	-0.46	-0.53	1.77*	1.09	0.47	0.59	0.74	1.37
target_eta_time	-0.3052	0.0002	0.0288	-0.5049	-1.6751	-0.1872	-0.0088	0.2424	0.0780	-0.1770	-0.1108
	-0.15	0.15	0.43	-1.08	-0.80	-0.65	-0.02	0.83	0.28	-0.67	-0.59
Target equity-to-assets	24.5708	0.0120	0.4040	8.7346	33.0272	2.5623	4.3201	-0.8062	1.2512	3.7737	1.9245
	0.94	0.50	0.55	1.63	1.49	0.81	0.63	-0.20	0.33	1.02	0.81
Cross-border deal	40.7544	0.0139	0.8618	21.3046	46.5620	8.3916	9.7942	-2.0160	-0.2985	0.6294	8.4873
	1.23	0.68	1.04	1.88*	1.35	3.24**	1.67*	-0.42	-0.07	0.18	2.66**
GDP Growth	-18.0096	-0.0187	-0.8630	3.2655	19.5737	-1.0757	6.8056	3.8904	2.5354	1.8099	-1.4348
	-1.69*	-1.79*	-1.62	0.63	1.12	-0.75	1.67*	1.32	1.13	0.99	-0.85
Learning-by-doing(LBYD)	3.0745	0.0003	0.0295	0.3589	-9.2944	-0.2861	-0.8046	-0.0434	0.0493	-0.1156	-0.5376
	0.95	0.14	0.37	0.44	-1.99**	-1.06	-1.12	-0.07	0.09	-0.24	-1.19
Adjusted R Square	0.4663	0.4346	0.3275	0.6480	0.2114	0.1910	0.2051	0.0206	0.0079	0.0355	0.1812

Table AVIII Cross-sectional Analysis of CARs upon Announcement

This table reports the ordinary least squares regression results for equation (5.10). The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt – Interest Capitalised)*(1-Tax Rate)))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. LBYO(x) measures the number of insurance M&As that happen during x years before announcement. Weighted LBYO use a logistic distribution to make mergers in closer years having more significant factor. Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Activity focus is the correlation of the pre-merger stock returns for the acquiring and target insurance firms. Country M&As is the portion of all insurance firms that were merged in the acquired insurer's home country during the merger year. Equal Size ranges from near 0 to 1 which indicates relative size between target and acquiring firms. Change of Herf is the change in the Herfindahl index of the insurance industry weighted by revenue in the target home country one year before and after merger. Hot market is equal to average cumulative abnormal return of public target insurance firms during the one year period before every merger announcement day in the sample in the target home country. Acquirer size is the natural log of acquirer's total assets in US dollars before merger. Megamerger is a dummy variable equals to 1 if both acquiring and target firms' total assets are more than 1 billion USD, 0 otherwise. Postmerger growth is insurer's asset growth rate over the 3 years post-merger, and it is normalised with the industry growth rate. Payment is a dummy variable if the transaction is paid by cash only, 0 otherwise. Target equity-to-assets is a book value ratio for the acquired insurance firm prior to the merger. Cross-border deal is a dummy variable if the acquirer and target are based in different countries, 0 otherwise. GDP growth is the acquirer's home country's gross domestic growth rate of the year of merger announcement. Learning-by-doing (LBYD) is the number of other insurance mergers made during the previous 1095 days (3 years) by the acquiring firm. Heteroskedastic-adjusted standard errors appear in Italic.

Δ Post-merger performance variables	Δ Premiums Earned ($mil)	Δ Interest Expense On Debt ($mil)	Δ Pretax Income ($mil)	Δ Tot. Debt % Tot. Capital&ST. Debt	Δ Total Debt % Common Equity	Δ Return On Equity - Total (%)	Δ Cash Flow/Sales	Δ Operating Profit Margin	Δ Pretax Margin	Δ Net Margin	Δ Return On Invested Capital
Panel A: OLS Results											
Constant	0.1695	0.0365	0.0469	-0.0103	0.0439	0.0432	0.1124	0.0158	0.0381	0.0299	0.0583
	1.35	*0.47*	*0.48*	*-0.05*	*0.47*	*0.44*	*0.70*	*0.17*	*0.39*	*0.32*	0.56
Δ Post merger performance	0	0	0	-0.0007	0.0002	-0.0002	-0.0034	0.0015	-0.0005	0.0006	-0.0025
	-1.73*	*-0.22*	*-1.56*	*-0.07*	*0.4*	*-0.09*	*-1.01*	*0.7*	*-0.19*	*0.29*	-0.68
LBYO(3)	0.0001	0	0.0001	0.0001	0.0001	0	0	0.0001	0	0.0001	0.0000
	2.35**	*1.81**	*2.94***	*0.47*	*2.27***	*2.73***	*0.62*	*2.96***	*2.59***	*3.26***	2.07**
LBYO(3)*Δ Post merger performance	0	0	0	0	0	0	0	0	0	0	0.0000
	1.73*	*0.21*	*1.55*	*-0.04*	*-0.54*	*0.06*	*0.98*	*-0.76*	*0.22*	*-0.25*	0.60
Activity focus	0.0552	-0.0302	0.0018	-0.0185	-0.0113	-0.0016	-0.0183	-0.0019	0	-0.001	0.0035
	1.02	*-1.09*	*0.05*	*-0.3*	*-0.3*	*-0.04*	*-0.4*	*-0.05*	*0*	*-0.03*	0.09
Country M&As	0.1271	0.2309	0.0688	0.1346	0.1165	0.0942	0.0681	0.086	0.0946	0.0991	0.0747
	1.54	*3.67***	*1.06*	*0.55*	*1.69**	*1.57*	*0.44*	*1.46*	*1.69**	*1.69**	1.16
Equal size	-0.0914	-0.0071	-0.038	-0.0559	-0.039	-0.0274	-0.0692	-0.0259	-0.0279	-0.027	-0.0311
	-1.74*	*-0.26*	*-1.02*	*-0.49*	*-1.04*	*-0.81*	*-1.59*	*-0.78*	*-0.82*	*-0.79*	-0.91
Change of Herf.	0.0269	-0.0066	0.0246	-0.0162	0.0022	0.0238	0.0412	0.0195	0.0257	0.0224	0.0253
	1.48	*-0.5*	*1.58*	*-0.27*	*0.11*	*1.52*	*1.73**	*1.13*	*1.43*	*1.35*	1.65
Hot market	0.4331	-0.1133	0.0704	0.4291	0.0726	0.0711	0.285	0.0487	0.084	0.1034	-0.0306
	1.85*	*-0.45*	*0.41*	*0.32*	*0.41*	*0.33*	*0.35*	*0.28*	*0.46*	*0.51*	-0.14
Acquiror size	-0.0184	-0.0055	-0.0093	-0.0059	-0.0113	-0.009	-0.0089	-0.0085	-0.0083	-0.0084	-0.0094
	-1.91*	*-1*	*-1.32*	*-0.37*	*-1.58*	*-1.31*	*-0.95*	*-1.31*	*-1.26*	*-1.25*	-1.37
Megamerger	0.0837	0.0126	0.0516	0.0461	0.0564	0.0534	0.0675	0.0537	0.0525	0.053	0.0531
	2.46**	*0.54*	*1.84**	*0.55*	*1.61*	*2.04***	*1.9**	*1.92**	*1.88**	*1.91**	2.09**
Postmerger growth	0.0033	0.0051	0.0014	-0.0022	0.0025	0.0008	0.0046	0.0001	-0.0005	-0.0001	-0.0002
	0.37	*0.73*	*0.15*	*-0.07*	*0.25*	*0.09*	*0.41*	*0.01*	*-0.05*	*-0.01*	-0.02
Payment	-0.0132	-0.0004	-0.002	0.0284	0.0025	-0.0017	0.0025	-0.0014	-0.0027	-0.0031	0.0017
	-1.06	*-0.03*	*-0.19*	*0.46*	*0.19*	*-0.14*	*0.18*	*-0.13*	*-0.25*	*-0.29*	0.14
target_eta_time	-0.012	0.0037	-0.0008	0.0311	0.0055	-0.0025	0.0017	-0.0001	-0.002	-0.0026	0.0011
	-1.37	*0.25*	*-0.09*	*0.89*	*0.57*	*-0.27*	*0.13*	*-0.01*	*-0.21*	*-0.28*	0.10
Target equity-to-assets	-0.0006	-0.0004	-0.0012	-0.0034	-0.0016	-0.0011	-0.0016	-0.0013	-0.0012	-0.0011	-0.0014
	-0.75	*-0.35*	*-1.43*	*-0.96*	*-1.89**	*-1.27*	*-1.65*	*-1.47*	*-1.39*	*-1.25*	-1.44
Cross-border deal	0.0162	0.0169	0.0293	0.0549	0.0302	0.0242	0.0456	0.0252	0.0263	0.0248	0.0296
	0.93	*0.91*	*1.82**	*1.09*	*1.92**	*1.35*	*1.9**	*1.54*	*1.54*	*1.44*	1.56
GDP Growth	0.0096	-0.0057	0.0033	0.0015	0.009	0.0045	0.0038	0.0047	0.0035	0.0036	0.0047
	1.09	*-1*	*0.47*	*0.09*	*1.16*	*0.63*	*0.54*	*0.65*	*0.5*	*0.5*	0.67
Learning-by-doing(LBYD)	-0.0013	-0.0016	-0.0011	-0.0022	-0.0022	-0.0011	-0.0017	-0.0013	-0.0014	-0.0013	-0.0012
	-0.68	*-1.46*	*-0.7*	*-0.5*	*-1.23*	*-0.66*	*-0.78*	*-0.82*	*-0.89*	*-0.82*	-0.77
Adjusted R Square	0.0791	0.087	0.0754	0.0713	0.0528	0.1005	0.1984	0.1005	0.2959	0.0126	-0.9006

					Panel B: $\partial CAR/\partial \Delta Performance$					
Mean	0.0000	0.0000	0.0000	-0.0010	-0.0001	0.0000	0.0001	-0.0001	0.0001	0.0000	-0.0005
t value	*-8.63***	*-9.31***	*-8.94***	*-126.99***	*-9.64***	*-13.03***	*1.14*	*-3.78***	*6.00***	*3.16***	*-10.92***

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

Table AIX Cross-sectional Analysis of Change in Risk

This table reports the ordinary least squares regression results for equation (5.9). The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Total Risk - Relative to World Financial Index is the standard deviation of share price in relative to the World Financial Index. Total Risk - Relative to Home Financial Index is the standard deviation of share price in relative to the Financials Index of the acquirer's home country. Beta Risk - Relative to World Financial Index is the systematic risk of the firm against the World Financial Index. Beta Risk - Relative to Home Financial Index is the systematic risk of the firm against the Financial Index in acquirer's home country. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt − Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. LBYO(x) measures the number of insurance M&As that happen during x years before announcement. Weighted LBYO use a logistic distribution to make mergers in closer years having more significant factor. Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Activity focus is the correlation of the pre-merger stock returns for the acquiring and target insurance firms. Country M&As is the portion of all insurance firms that were merged in the acquired insurer's home country during the merger year. Equal Size ranges from near 0 to 1 which indicates relative size between target and acquiring firms. Change of Herf is the change in the Herfindahl index of the insurance industry weighted by revenue in the target home country one year before and after merger. Hot market is equal to average cumulative abnormal return of public target insurance firms during the one year period before every merger announcement day in the sample in the target home country. Acquirer size is the natural log of acquirer's total assets in US dollars before merger. Megamerger is a dummy variable equals to 1 if both acquiring and target firms' total assets are more than 1 billion USD, 0 otherwise. Postmerger growth is insurer's asset growth rate over the 3 years post-merger, and it is normalised with the industry growth rate. Payment is a dummy variable if the transaction is paid by cash only, 0 otherwise. Target equity-to-assets is a book value ratio for the acquired insurance firm prior to the merger. Cross-border deal is a dummy variable if the acquirer and target are based in different countries, 0 otherwise. GDP growth is the acquirer's home country's gross domestic growth rate of the year of merger announcement. Learning-by-doing (LBYD) is the number of other insurance mergers made during the previous 1095 days (3 years) by the acquiring firm. Heteroskedastic-adjusted standard errors appear in Italic.

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Panel A: Change in Financial Performance Risk

Δ Risk variables	Δ Volatilities-Premiums Earned	Δ Vol-Interest Expense On Debt	Δ Volatilities-Pretax Income	Δ Vol-Return On Equity - Total (%)	Δ Volatilities-Cash Flow/Sales	Δ Vol-Operating Profit Margin	Δ Volatilities-Pretax Margin	Δ Volatilities-Net Margin	Δ Vol-Return On Invested Capital
Constant	-408.83	279.39	8398.88	8808.47	-152.42	134.16	1157.80	11997.91	143455.30
	-1.10	*1.16*	*1.66**	*1.40*	*-0.07*	*1.31*	*0.87*	*1.38*	*0.86*
LBYO (2)	1479.75	-622.68	-11413.00	-13851.60	192.46	-87.04	-1816.33	-18748.90	-249470.00
	1.52	*-1.83**	*-1.7**	*-2.18***	*0.07*	*-0.57*	*-0.94*	*-2.07***	*-1.01*
Time	10.83	-52.36	-707.52	-958.04	16.57	-11.14	-95.92	-1420.79	-11143.40
	0.13	*-1.95**	*-1.54*	*-1.78**	*0.09*	*-1.04*	*-0.72*	*-1.86**	*-0.74*
LBYO (2) *Time	-117.32	82.96	935.16	1795.14	-80.38	14.52	133.26	2533.83	17144.27
	-1.35	*1.97***	*1.63*	*2.47***	*-0.24*	*0.96*	*0.82*	*2.46***	*0.86*
Acitivity focus	117.09	129.66	748.13	741.38	175.43	60.56	249.83	1069.32	-17484.30
	0.73	*1.74**	*0.96*	*0.80*	*0.35*	*1.48*	*0.90*	*0.83*	*-0.80*
Country M&As	192.32	161.65	1066.81	-2260.41	-987.02	-25.56	433.27	-3955.40	16712.71
	0.71	*1.75**	*0.69*	*-1.04*	*-0.16*	*-0.46*	*0.84*	*-1.23*	*0.51*
Equal size	-64.58	43.04	614.67	-211.55	-10.43	9.77	171.11	-442.80	15791.05
	-1.08	*0.55*	*1.08*	*-0.33*	*-0.03*	*0.60*	*0.88*	*-0.53*	*1.00*
Change of Herf.	-74.12	-16.85	-554.72	-389.24	108.22	-11.20	-157.34	-367.09	-8440.00
	-1.07	*-0.60*	*-1.18*	*-0.79*	*0.65*	*-0.91*	*-0.86*	*-0.53*	*-0.70*
Hot market	872.06	2412.71	16636.07	-8284.30	-7590.92	351.97	2029.36	-12926.00	363691.30
	0.86	*1.82**	*1.39*	*-0.57*	*-0.48*	*1.47*	*0.76*	*-0.63*	*0.82*
Acquiror size	-15.41	-2.73	-62.97	-184.49	36.37	-5.32	-12.10	-233.48	2950.93
	-0.79	*-0.17*	*-0.82*	*-1.10*	*0.39*	*-1.06*	*-0.42*	*-1.01*	*0.94*
Megamerger	62.99	-10.27	-614.68	171.52	-177.56	3.36	-247.98	4.31	-29075.50
	0.77	*-0.19*	*-0.88*	*0.36*	*-0.86*	*0.23*	*-0.95*	*0.01*	*-0.99*
Postmerger growth	-21.65	14.41	-109.96	-134.70	50.77	-17.08	-19.68	-215.85	-9090.15
	-0.63	*0.49*	*-0.97*	*-0.66*	*0.40*	*-1.64*	*-0.54*	*-0.74*	*-0.95*
Payment	24.04	-19.03	185.07	725.61	-144.15	0.06	88.58	1194.14	-9206.74
	0.48	*-0.55*	*0.58*	*2.17***	*-0.78*	*0.01*	*0.82*	*2.51***	*-0.99*
target_eta_time	-109.08	111.09	-489.95	3057.05	-327.33	1.62	-146.63	4254.35	-4392.92
	-1.16	*1.16*	*-0.91*	*2.75***	*-0.60*	*0.13*	*-0.80*	*2.81***	*-0.40*
Target equity-to-assets	10.71	-6.94	42.75	-303.83	38.52	-0.17	11.83	-423.90	701.21
	1.14	*-0.81*	*0.84*	*-2.82***	*0.73*	*-0.14*	*0.72*	*-2.86***	*0.63*
Cross-border deal	-19.75	90.17	105.64	984.28	-143.40	-3.88	86.99	1489.99	-13382.70
	-0.45	*1.69**	*0.34*	*1.8**	*-0.43*	*-0.31*	*0.94*	*1.94**	*-1.12*
GDP Growth	48.27	5.03	269.10	-139.63	-16.67	3.29	73.41	-124.63	2447.15
	1.14	*0.33*	*1.29*	*-0.62*	*-0.27*	*0.54*	*0.86*	*-0.41*	*0.66*
Learning-by-doing(LBYD)	2.47	-4.23	50.67	-30.09	18.20	-1.16	16.85	-55.44	508.60

	0.38	-1.7*	1.04	-0.61	0.65	-0.58	0.94	-0.76	-0.76
Adjusted R Square	0.0035	-0.0183	-0.0172	0.7658	-0.7362	0.0595	-0.2418	0.7711	-0.1724

Panel B: Change in Beta Risk and Total Risk				

Δ Risk variables	Change of Beta - world financials	Change of Beta - home financials	Change of Total Risk - world financials	Change of Total Risk - home financials
Constant	-0.2223	0.8616	-73.0008	-46.4557
	-0.31	*1.24*	*-1.29*	*-1.37*
LBYO (2)	0.5767	-0.6816	29.4857	26.2000
	1.02	*-0.85*	*0.68*	*0.73*
Time	0.0182	-0.0587	-0.8526	-1.4159
	0.40	*-0.79*	*-0.24*	*-0.43*
LBYO (2) *Time	-0.0501	0.0884	-0.7952	0.8204
	-0.83	*0.97*	*-0.15*	*0.19*
Activity focus	0.1448	0.0624	-29.2029	-13.5621
	0.58	*0.29*	*-1.26*	*-1.18*
Country M&As	-0.1635	0.7474	18.1826	-0.2099
	-0.47	*2.01**	*0.69*	*-0.01*
Equal size	-0.0585	0.1018	9.8821	3.4609
	-0.32	*0.75*	*0.80*	*0.52*
Change of Herf.	-0.0848	-0.1844	-0.0957	2.4014
	-0.88	*-1.63*	*-0.01*	*0.54*
Hot market	-1.1122	0.8630	-243.2630	-91.3969
	-0.69	*0.46*	*-1.20*	*-0.67*
Acquiror size	0.0099	-0.0287	5.1294	2.7356
	0.25	*-1.13*	*1.61*	*1.54*
Megamerger	-0.1011	-0.0996	-13.3192	-7.4685
	-0.61	*-0.84*	*-0.94*	*-0.92*
Postmerger growth	-0.0042	-0.0969	0.5510	-0.1921
	-0.08	*-1.56*	*0.14*	*-0.07*
Payment	0.0480	0.0125	2.0378	3.3637
	0.55	*0.15*	*0.35*	*0.82*
target_eta_time	-0.0491	0.0216	-6.1404	0.6540
	-0.53	*0.27*	*-0.75*	*0.12*
Target equity-to-assets	0.0010	-0.0011	0.7852	0.1054
	0.11	*-0.14*	*1.01*	*0.23*
Cross-border deal	0.1209	-0.0073	-4.2635	-0.8965
	1.33	*-0.09*	*-0.81*	*-0.21*
GDP Growth	-0.0233	-0.0141	-5.3963	-3.7033
	-0.50	*-0.33*	*-2.32**	*-2.22**
Learning-by-doing(LBYD)	-0.0123	0.0000	0.4043	0.3173
	-1.28	*0.00*	*0.67*	*0.94*
Adjusted R Square	-0.1136	-0.1082	0.0432	0.1061

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

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Table AX Cross-sectional Analysis of CAR Vs Change in Risk

This table reports the ordinary least squares regression results for equation (5.11). The sample consists of 76 M&As transactions that were announced and finished during 1990 and 2007. We combine the financial reports of the bidder and target firms 1 year before merger and calculate risk measurements, then compare it to the actual risk measurement of the merged insurance firm 3 year after the transaction completed. We adjust both the risk measurements of both before and after mergers with industry-level risk. That results in the Δ post merger risk. When the acquirer and target are different in reporting currencies, average daily exchange rates of the year is used to convert target financial reporting items to acquirer firm reporting currency. The symbol Δ represents change in. Total Risk - Relative to World Financial Index is the standard deviation of share price in relative to the World Financial Index. Total Risk - Relative to Home Financial Index is the standard deviation of share price in relative to the Financials Index of the acquirer's home country. Beta Risk - Relative to World Financial Index is the systematic risk of the firm against the World Financial Index. Beta Risk - Relative to Home Financial Index is the systematic risk of the firm against the Financial Index in acquirer's home country. Premium Earned is the proportion of all premiums written required to pay total expenses and benefits. Interest Expense on Debt is interest charged on debt. Pretax Income is all income or loss before tax. Extraordinary items are not included. Tot. Debt % Tot. Capital&ST. Debt = (LTD + STD)… LTD/(Total Capital + STD&Current Portion of LTD)*100.Total Debt % Common Equity = (LTD + STD&Current Portion of LTD)/(Common Equity + Policyholder Equity)*100. CF/Sales-Operations Funds/Rev. or Net Sales*100.Operation Profit Margin = Op. Inc./Rev. or Net Sales*100.Pretax Margin = Pretax Income/Rev. or Net Sales * 100. Net Margin = (Net Inc. before Pref. Div.+Policyholder Surplus)/Rev. or Net Sales*100. Return On Invested Capital=(Net Inc. before Pref. Div. +((Interest Exp. On Debt – Interest Capitalised)*(1-Tax Rate))))/ Ave. of Pre. Yrs and Cur. Yrs (Total Capital + Pre. Yrs STD & Current Portion of LTD)*100. LBYO(x) measures the number of insurance M&As that happen during x years before announcement. Weighted LBYO use a logistic distribution to make mergers in closer years having more significant factor.Computers per capita, Mobile phones per 100 inhabitants and Internet users per capita are based on data from http://data.un.org. Activity focus is the correlation of the pre-merger stock returns for the acquiring and target insurance firms. Country M&As is the portion of all insurance firms that were merged in the acquired insurer's home country during the merger year. Equal Size ranges from near 0 to 1 which indicates relative size between target and acquiring firms. Change of Herf is the change in the Herfindahl index of the insurance industry weighted by revenue in the target home country one year before and after merger. Hot market is equal to average cumulative abnormal return of public target insurance firms during the one year period before every merger announcement day in the sample in the target home country. Acquirer size is the natural log of acquirer's total assets in US dollars before merger. Megamerger is a dummy variable equals to 1 if both acquiring and target firms' total assets are more than 1 billion USD, 0 otherwise. Postmerger growth is insurer's asset growth rate over the 3 years post-merger, and it is normalised with the industry growth rate. Payment is a dummy variable if the transaction is paid by cash only, 0 otherwise. Target equity-to-assets is a book value ratio for the acquired insurance firm prior to the merger. Cross-border deal is a dummy variable if the acquirer and target are based in different countries, 0 otherwise. GDP growth is the acquirer's home country's gross domestic growth rate of the year of merger announcement. Learning-by-doing (LBYD) is the number of other insurance mergers made during the previous 1095 days (3 years) by the acquiring firm.Heteroskedastic-adjusted standard errors appear in Italic.

Δ Risk Variables	Change of Beta - world financials	Change of Beta - home financials	Change of Total Risk - world financials	Change of Total Risk - home financials

<!-- Panel A -->

Panel A: Change in Beta Risk and Total Risk				
Δ Risk Variables	Change of Beta - world financials	Change of Beta - home financials	Change of Total Risk - world financials	Change of Total Risk - home financials
Constant	0.0163	0.0366	0.0608	0.0724
	0.18	*0.40*	*0.63*	*0.73*
Δ RISK	-0.1669	-0.1332	-0.0043	-0.0014
	-1.22	*-1.41*	*-1.45*	*-0.37*
LBYO(3)	0.0000	0.0000	0.0000	0.0000
	*2.98**	*2.98**	*3.12**	*2.45**
LBYO(3)*Δpost-merger Risk.	0.0001	0.0001	0.0000	0.0000
	1.39	*1.48*	*1.53*	*0.48*
Activity focus	-0.0046	0.0010	0.0078	0.0080
	-0.12	*0.03*	*0.19*	*0.19*
Country M&As	0.0943	0.0827	0.0956	0.0992
	*1.83**	*1.50*	*1.72**	*1.78**
Equal size	-0.0254	-0.0328	-0.0308	-0.0303
	-0.79	*-0.99*	*-0.93*	*-0.92*
Change of Herf.	0.0225	0.0270	0.0187	0.0203
	1.56	*1.77**	*1.26*	*1.32*
Hot market	-0.0673	0.0929	-0.0353	-0.0211
	-0.29	*0.49*	*-0.13*	*-0.08*
Acquirer size	-0.0079	-0.0085	-0.0103	-0.0102
	-1.14	*-1.32*	*-1.46*	*-1.47*
Megamerger	0.0501	0.0531	0.0590	0.0567
	*1.69**	*1.94**	*2.19***	*2.14***
Postmerger growth	0.0019	0.0035	0.0001	0.0013
	0.20	*0.33*	*0.01*	*0.13*
Payment	0.0012	-0.0013	-0.0058	-0.0058
	0.10	*-0.11*	*-0.48*	*-0.48*
target_eta_time	-0.0017	-0.0006	-0.0092	-0.0101
	-0.18	*-0.06*	*-0.73*	*-0.81*
Target equity-to-assets	-0.0011	-0.0012	-0.0007	-0.0006
	-1.22	*-1.31*	*-0.58*	*-0.50*
Cross-border deal	0.0258	0.0250	0.0221	0.0205
	*1.76**	*1.7**	*1.35*	*1.29*
GDP Growth	0.0061	0.0048	0.0061	0.0066
	0.75	*0.66*	*0.76*	*0.84*
Learning-by-doing(LBYD)	-0.0010	-0.0010	-0.0012	-0.0011
	-0.65	*-0.63*	*-0.68*	*-0.63*
Adjusted R Square	0.0846	0.1046	0.1101	0.0881
Panel B: ∂CAR/∂ΔRisk				
Mean	-0.0920	-0.0740	-0.0020	-0.0006
t-value	*-59.30**	*-60.13**	*-64.54**	*-41.58**

	Panel C: Change in Financial Performance Risk								
Δ Risk Variables	Δ Volatilty Interest Expense On Debt	Δ Volatilty Pretax Income	Δ Volatilty Total Debt % Common Equity	Δ Volatilty Return On Equity - Total (%)	Δ Volatilty Cash Flow/Sales	Δ Volatilty Operating Profit Margin	Δ Volatilty Pretax Margin	Δ Volatilty Net Margin	Δ Volatilty Return On Invested Capital
Constant	0.6438	0.0706	0.3348	0.1730	-5.8286	0.0593	0.0531	0.0417	0.0674
	1.51	*0.76*	*4.69***	*0.16*	*-0.17*	*0.66*	*0.49*	*0.46*	*0.76*
Δ RISK	0.0075	-0.0001	-0.0107	0.0727	-0.1367	-0.0024	0.0020	0.0038	0.0001
	0.55	*-0.36*	*-0.99*	*0.13*	*-0.14*	*-0.15*	*0.06*	*0.30*	*0.46*
LBYO(3)	-0.0002	0.0000	-0.0001	0.0000	0.0011	0.0001	0.0001	0.0001	0.0001
	-0.85	*0.96*	*-2.04***	*0.09*	*0.22*	*1.41*	*0.56*	*1.49*	*1.94**
LBYO(3)*Δpost-merger risk	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
	-0.53	*0.33*	*0.98*	*-0.13*	*0.14*	*0.14*	*-0.06*	*-0.31*	*-0.46*
Activity focus	-0.0496	-0.0118	0.0193	-0.3288	-3.3167	0.0033	0.0040	0.0092	0.0252
	-1.03	*-0.19*	*0.42*	*-0.12*	*-0.15*	*0.05*	*0.03*	*0.19*	*0.34*
Country M&As	0.2206	0.1153	0.4141	0.4990	10.8060	0.1163	0.1374	0.1368	0.1366
	1.11	*1.30*	*1.43*	*0.16*	*0.16*	*1.28*	*0.67*	*1.68**	*1.73**
Equal size	-0.0864	-0.0355	-0.0361	0.3412	0.0947	-0.0311	-0.0372	-0.0396	-0.0488
	-1.9*	*-1.26*	*-1.41*	*0.11*	*0.07*	*-0.61*	*-1.25*	*-1.52*	*-1.43*
Change of Herf.	-0.0167	0.0299	-0.0180	-0.1012	-0.7026	0.0175	0.0169	0.0194	0.0213
	-0.40	*0.81*	*-0.96*	*-0.10*	*-0.13*	*0.92*	*0.22*	*1.12*	*1.59*
Hot market	-0.1493	0.3927	-0.9582	0.4654	1.3926	0.3039	0.1584	0.1581	0.2437
	-0.05	*0.85*	*-0.53*	*0.21*	*0.02*	*0.51*	*0.17*	*0.39*	*1.01*
Acquiror size	-0.0220	-0.0085	-0.0170	-0.0090	0.1113	-0.0115	-0.0112	-0.0110	-0.0120
	-2.1**	*-1.16*	*-4.01***	*-0.34*	*0.14*	*-2.24***	*-0.77*	*-1.73**	*-1.68**
Megamerger	0.0711	0.0658	0.0741	0.0310	-0.2628	0.0581	0.0530	0.0545	0.0585
	2.53**	*1.95**	*4.06***	*0.11*	*-0.09*	*1.79**	*1.79**	*1.97**	*2.8***
Postmerger growth	0.0049	0.0079	0.0171	-0.0422	0.3868	0.0020	0.0047	0.0069	0.0058
	0.22	*0.63*	*1.37*	*-0.11*	*0.15*	*0.16*	*0.13*	*0.55*	*0.48*
Payment	0.0037	-0.0210	-0.0295	-0.0806	-0.2770	-0.0131	-0.0043	-0.0087	-0.0152
	0.14	*-0.63*	*-1.77**	*-0.15*	*-0.14*	*-0.66*	*-0.05*	*-0.39*	*-0.94*
target_eta_time	-0.2526	0.0178	-0.1071	-0.0803	1.4757	0.0263	0.0273	0.0297	0.0282
	-0.85	*0.57*	*-2.39***	*-0.10*	*0.18*	*0.81*	*0.36*	*0.87*	*1.10*
Target equity-to-assets	0.0251	-0.0027	0.0129	0.0064	-0.1443	-0.0036	-0.0039	-0.0041	-0.0039
	0.85	*-0.80*	*2.79***	*0.08*	*-0.18*	*-1.04*	*-0.48*	*-1.09*	*-1.51*
Cross-border deal	-0.0059	-0.0165	-0.0113	-0.0553	-0.1115	-0.0101	-0.0039	-0.0020	0.0003
	-0.14	*-0.49*	*-0.61*	*-0.14*	*-0.20*	*-0.39*	*-0.13*	*-0.08*	*0.01*
GDP Growth	0.0147	0.0024	0.0030	-0.0350	0.3323	0.0064	0.0050	0.0069	0.0047
	0.47	*0.16*	*0.31*	*-0.11*	*0.14*	*0.60*	*0.25*	*0.75*	*0.70*
Learning-by-doing(LBYD)	-0.0047	-0.0006	-0.0006	0.0160	0.0268	-0.0002	-0.0001	0.0000	0.0010

	-0.79	*-0.23*	*-0.22*	*0.13*	*0.14*	*-0.09*	*-0.08*	*0.03*	*0.34*
Adjusted R Square	0.3121	-0.0845	0.2479	-32.2790	-108.5400	-0.0776	-0.0776	0.0761	0.1790
Panel D: $\partial CAR/\partial \Delta Risk$									
Mean	0.0047	0.0000	-0.0050	0.0416	-0.0850	-0.0010	0.0012	0.0022	0.0000
t-value	*81.29***	*-81.79***	*-50.12***	*64.09***	*-79.8***	*-58.06***	*80.39***	*67.89***	*31.58***

***,**,* denote statistical significant at the 1%,5% and 10% levels, respectively

Appendix B: Summary of determinant variables

Table A: Summary of determinant variables

Corporate Governance variables	
ADRI	Anti-director Rights index designed by LLSV (1998) for shareholder protection. Pagano and Volpin (2005) extended the index to 1993-2001. It is the sum of six dummy variables, indicating if proxy by mail is allowed, shares are not blocked before a shareholder meeting, cumulative voting for directors is allowed, oppressed minorities are protected, the percentage of share capital required to call an extraordinary shareholder meetings is less than 10 percent, and existing shareholders have preemptive rights at new equity offerings. The latest available indicators are used for target nations.
SAAS	SAAS is the Strength of Auditing and Accounting Standards Index published in The Global Competitiveness Report 2008-2009 by the World Economic Forum.
CORPGOV	Corporate Governance scores published in The Global Competitiveness Report 2008-2009 by the World Economic Forum. The variable characterizes corporate governance by investors and boards of directors in a country with a range of 1 to 7. (1 = management has little accountability to investors and boards; 7 = investors and boards exert strong supervision of management decisions)
MDO	Mandatory Dividend scores provided in LLSV (1998). It equals the percentage of net income that the company law or commercial Company law or commerce code requires firms to distribute as dividends among ordinary stockholders.
VA	Voice and Accountability – measuring perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. (Kaufmann et al 2008) For each target nation, the ranking of event announcement year is used in the regression.
PS	Political Stability and Absence of Violence – measuring perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. (Kaufmann et al 2008) For each target nation, the ranking of event announcement year is used in the regression.
GE	Government Effectiveness – measuring perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. (Kaufmann et al 2008) For each target nation, the ranking of event announcement year is used in the regression.
RL	Rule of Law – measuring perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. (Kaufmann et al 2008) For each target nation, the ranking of event announcement year is used in the regression.

CC	Control of Corruption – measuring perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. (Kaufmann et al 2008) For each target nation, the ranking of event announcement year is used in the regression.

Transaction variables

BIDDERSIZE	Log of acquirer firm market capitalisation in USD
XBORDER	Dummy variable XBORDER differentiates whether the bidder and target are located in the same country. It denotes 1 if bidder and target are located in different countries, 0 otherwise.
DIVERSIF	DIVERSIF indicates that the target operates mostly in a different business line. It denotes 1 if the bidder and target have different 6-digit NAIC code, 0 otherwise.
ATTITUDE	ATTITUDE is a dummy variable to differentiate hostile deals and friendly deals. A friendly deal is denoted as 0 and a deal other than friendly is denoted as 1 for the variable.
CASHONLY	Dummy variable CASHONLY specifies whether the transaction is all paid in cash. It denotes 1 if the deal is paid with cash only, 0 otherwise.
SERIALBIDDER	Dummy variable SERIALBIDDER specifies whether the bidder is multiple acquirers. We use all the 1061 deals to calculate the average number of acquisitions and the number is 4.55. For those bidders make acquisition more than the average number of bids for all bidders during observation period, dummy equals one. Otherwise, dummy equals zero.
DISTANCE	We use DISTANCE as proximity of geographic difference between bidder and target for cross-border deals. The DISTANCE variable is the actual distance between the capital cities of home and host countries.

Macroeconomic variables

ECO	ECO is measured by the target country's above-average growth rate in the year preceding the acquisition. ECO is defined as the target nation's real GDP growth in the year to the announcement of the merger minus the average real GDP growth rate of the target nation during the study period (1994-2007).
GDPCOR	GDPCOR is the 10-year correlation of growth rates between the host and home countries.
RELINF	RELINF is the difference of inflation rates between the host and home countries over a 5 year period preceding the merger completion.
FXAPP	We use FXAPP to quantify the appreciation rate of the home currency against the host currency in the year preceding the announcement and expect this variable to be negatively related with the acquirer's wealth change.
FXVOL	Exchange rate volatility FXVOL is measured by the standard deviation of daily exchange rates in the year preceding the announcement.

Macroeconomic data is sourced from Economic Research Service, United States Department of Agriculture (www.ers.usda.gov/Data/Macroeconomics)

Raw data of transaction variables is sourced from the Worldwide Mergers & Acquisitions database of Thomson Financial Securities Data.

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