BANK-INSURANCE M&A DEALS: AN EMPIRICAL INVESTIGATION OF THE RISK-RETURN EFFECTS ON ACQUIRING FIRMS AND ON THE FINANCIAL INDUSTRY

by

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To my beloved grandfather Vasos, for being a wonderful person that I will never forget…

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1. INTRODUCTION

1.1. INTRODUCTION

The global financial crisis of 2007-2009 has culminated into severe losses for institutions, financial markets and international economies alike. What started as a mere banking crisis – triggered by the collapse of the U.S. housing market due to an unprecedented level of borrowers' defaults – rapidly spill over within and across sectors, industries, and national economies, with dramatic consequences.

The effects of the crisis have led to renewed attention on a) how interconnected modern financial institutions and markets are, b) the inherent risks of the current style of financial intermediation (Berger, Molyneux and Wilson, 2009) and, c) how easily – otherwise pure – idiosyncratic shocks can nowadays manifest into systemic crises of global nature and reach. Not only that, the consequences of this crisis have also highlighted the inherent flaws within the current financial regulatory system, adeptly analysed in Moshirian (2010a; b). Given the unique role of financial institutions in the mechanics of modern economies (Saunders and Cornett, 2008), the above problems have refuelled the longstanding debate on bank risk, contagion and systemic risks, and regulation. The debate becomes even more apparent if one considers one of the major recent developments in the banking industry; the emergence of financial conglomerates. This was made possible through the abolition of existing regulatory firewalls that prevented the integration of players operating in the financial services industry. The first to allow financial intermediaries to combine banking, insurance and other financial services under the same corporate umbrella was Europe, through the Second Banking Directive of 1989. Europe's initiative was subsequently followed by the U.S. that introduced similar incentives through the Gramm–Leach–Bliley Act of 1999, otherwise known as the Financial Services Modernization Act of 1999.

The main concern among regulators, with respect to large financial conglomerates, is whether the risk inherent in their operations, under financial crises, will have a greater potential to spill over across sectors, and to spread from these sectors to the real economy, bringing about crises such as the 2007-2009 one (Parsons and Mutenga, 2009). These concerns materialised during the crisis, with a number of "too-

big-to-fail[1]" institutions being bailed out at the expense of taxpayers. As expected, discussions for more effective regulation and/or supervision of large banks and conglomerates intensified. For example, in November 2009, the managing director of the International Monetary Fund (IMF), Dominique Strauss-Kahn called for a more effective supervision of systemically important financial institutions and pointed out the need to minimise the moral hazard issues associated with bailouts of such institutions. Strauss-Kahn (2009) also discussed renewed claims for 'narrow banking', where a growing number of academics and policy makers are debating on whether the size and permissible activities of financial institutions should be re-constricted due to increased systemic risk. Narrowing the scope of large financial institutions requires the reintroduction of firewalls such as those imposed by the Glass-Steagall Act, that opted to limit the risks that deposits are exposed to (Boot and Thakor, 2009; Morrison, 2009). In a somewhat similar vein, the notion of increased systemic risk – arising from the broadened scope of banking activities – has been recently gaining ground in both theoretical (Acharya, 2009; Ibragimov, Jaffee and Walden, 2010; Wagner, 2010) and empirical contributions (De Jonghe, 2010).

In line with this notion, questions have been raised as to whether the global financial intermediation process is at stake, with some arguing that re-regulation is a virtual certainty (Walter, 2009). However, history is there to remind all stakeholders that entering a new series of cyclical interactions between regulation, regulatory avoidance and re-regulation, or deregulation, as depicted in Kane (1981), does not represent an optimal solution to the problem. Neither will constraining the degree of product diversification of financial institutions eliminate the risk of future systemic crises, as implied in Wagner (2010). An important issue that must be clarified by policymakers is the distinction between types of bank diversification that add value for shareholders without adding to systemic risk, and those that might pose a threat to financial stability irrespective of the possible benefit to the individual firms' shareholders.

In general, the above serve as the motivation for this thesis, which seeks to address the issues of risk-return and spillover effects from bank-insurance mergers. Nevertheless, before looking at the motivation, research question and objectives of

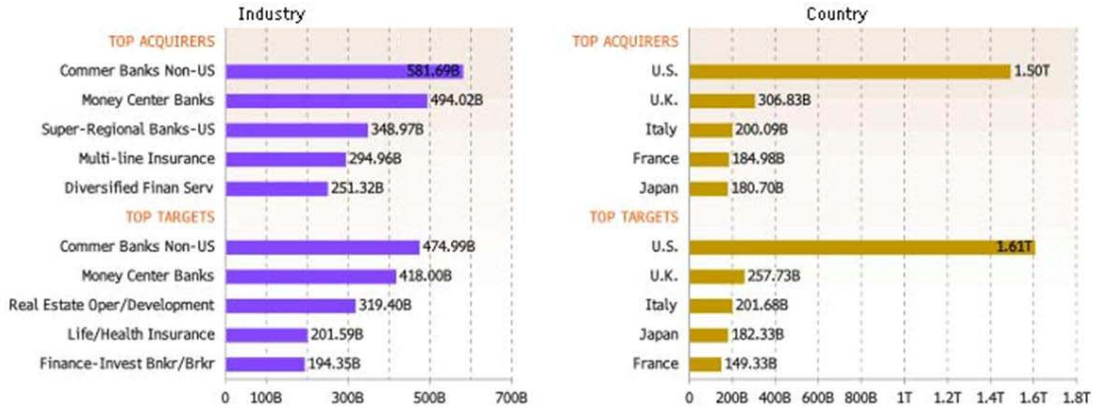
[1] Too-big-to-fail institutions are those that not only are important to markets because of their sheer size, but also those that their positions are so intertwined with the positions of other institutions that their failure would seriously damage economic stability. This concept is further discussed in the following chapter.

this thesis in more detail in the following sections, it is important to look into the evolution of mergers and acquisitions in financial services industry over the past 20 years, and the subsequent eruption of financial conglomerates.

1.2. THE GLOBAL M&A LANDSCAPE

Over the last two decades the financial services industry has experienced a burgeoning of mergers and acquisitions (M&As, hereafter). Specifically, over the course of this period, the financial industry has witnessed a rapid increase in both in numbers and comparative size of deals. According to M&A data reported in Bloomberg, more than 13,000 international deals, worth $3.36 trillion, were announced and subsequently completed between 1990 and 2006. Figure 1.1 shows the distribution of the top acquirers and targets (figures in U.S. dollars, billions), in terms of industry and country of origin, respectively.

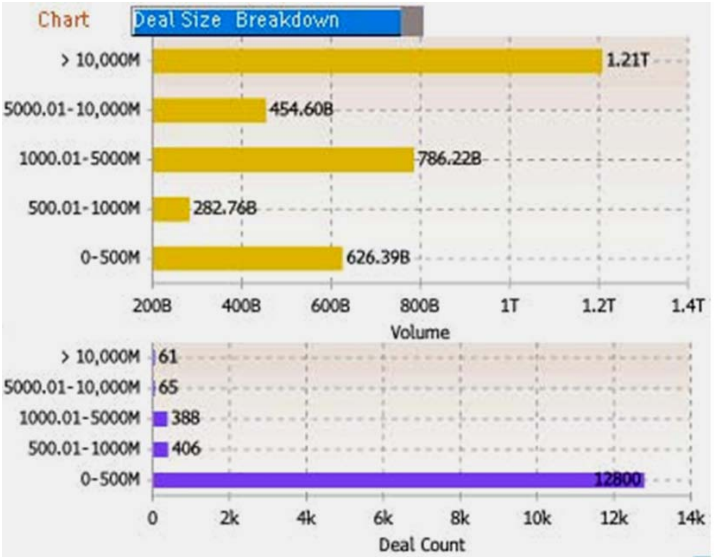
Figure 1.1. Top FI acquirers and targets by industry and country



Source: Bloomberg

Looking at Figure 1.1, it is evident that non-U.S. Commercial Banks have been the most active acquirers, both in terms of deal numbers (1,618) and total value, followed by Money Center Banks, Super Regional U.S. banks, Multiline Insurance and Diversified Financial Services. In a similar fashion, non-U.S. Commercial Banks have also topped the targets list. Shifting the focus to the top acquirers and targets by country, the U.S. tops the list with the total value of deals being $1.50 trillion and $1.61 trillion for acquirers and targets, respectively. Finally, U.S. financial institutions are followed by European and Japanese firms in terms of the total value of deals assigned to target firms.

Figure 1.2. Deal size breakdown



Source: Bloomberg

Figure 1.2 shows the deal breakdown by relative size (figures in U.S. dollars). It is evident that more than 90% of the deals are in the $0-$500 million range. However, it seems that megamergers have not been uncommon, with 61 of these reaching $1.21 trillion in total value. According to Pilloff (2004) the consolidation can be largely attributed to mergers of healthy institutions and has resulted in the number of banking organisations in the U.S. dropping twofold, from about 16,000 in 1980, to about 8,000 in 2003.

Looking into the four five-year sub-periods[2] within 1987-2006 it is evident that the numbers and total value of deals in the financial services industry has been increasing. In addition, there are common patterns emerging both at the regional and sector levels. Specifically, Thomson Financial data show that the number of worldwide M&As in the financial services industry rose from 1,437 in the first sub-period to 2,627 in the second, an increase of 82.8%, while their value went up 118.6% from $148.6 billion to $324.8 billion. Moving forward, the 1997-2001 period has seen both the value and number of deals at peak levels as their total size reached $1.66 trillion (+410.9%) and their number increased to 3,743 (+42.5%). However, the bear market of 2001 has resulted in a slowdown of the M&A activity, with the total value and number of deals dropping 56.9% and 34.6% respectively, relative to the previous five year period. As previously pointed out, deal activity in the financial services industry

[2] The four sub-periods under examination are 1987-1991, 1992-1996, 1997-2001 and 2002-2006.

followed more or less the same pattern globally, with the period 1997-2001 accounting on average for 55% of the total value of international M&As in the last 20 years[3].

Shifting the attention to the banking sector, the value of M&As increased from $96.2 to $199.1 billion (+107%) between the first and second 5-year periods and then reached a peak of $817.9 billion in the 1997-2001 period. Banking M&As have experienced an equivalent downturn at the international and regional levels in the last 5 years – dropping almost 50% – both in terms of their total size and number. Moreover, consistent with the aggregate figures from the financial services industry, banking mergers from 1997 to 2001 accounted on average for 53% of the total M&A value across regions within the 1987-2006 period[4].

International M&A deals within the insurance sector have flourished as well. Starting with a total number of 204 deals valued at $10.7 billion in the 1987-1991 period, M&As between insurers increased to a total of 314 deals worth $42.5 billion. In the following five year period, both the total number and value of M&As in the insurance industry increased 96% and 560%, respectively, or otherwise, involved 614 deals valued at $280 billion. The largest nine deals were sealed between 1997 and 2001, with the biggest being completed in 2000, when Switzerland's Zurich Allied merged with U.K. arm Allied Zurich in a $19.4bn transaction[5]. Following the terrorist attacks in the U.S. in late 2001 however, M&A deals in insurance hit the wall as both direct and indirect losses from the World Trade Center had a massive impact on the insurers' balance sheets that were already affected by the 2001 bear markets. It is important to note that the phenomenon was not restricted to the banking and insurance sectors, as M&As between other financial firms also exhibited a spectacular increase (Amel, Barnes, Panetta and Salleo, 2004). An interesting pattern seems to arise when emphasis is put on the economic drivers of the consolidation in the financial services industry. The booming stock markets of the 1990s have expanded the capital bases of financial companies which subsequently used their stocks as currency for expansion through M&As. The role of the stock markets in the M&A activity worldwide is mostly evident if we consider the observed increase in M&As during the bull markets

[3] For a more detailed representation of the financial services industry's M&A statistics both at the global and regional level see Table A.1 in appendix A.

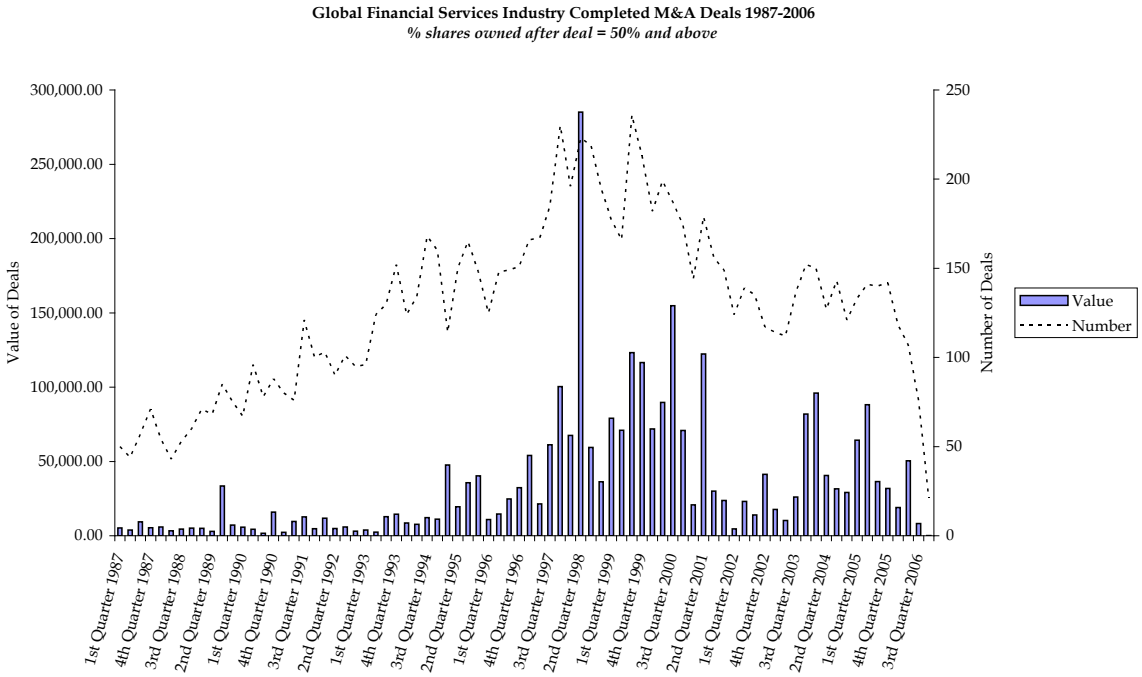
[4] For a more detailed representation of the banking sector's M&A statistics both at the global and regional level see Table A.2 in appendix A.

[5] For a more detailed representation of the insurance sector's M&A statistics both at the global and regional level see Table A.3 in appendix A.

of 1995-2000 and the subsequent decrease in M&A activity during the global equity market decline in the 2000-2002 period.

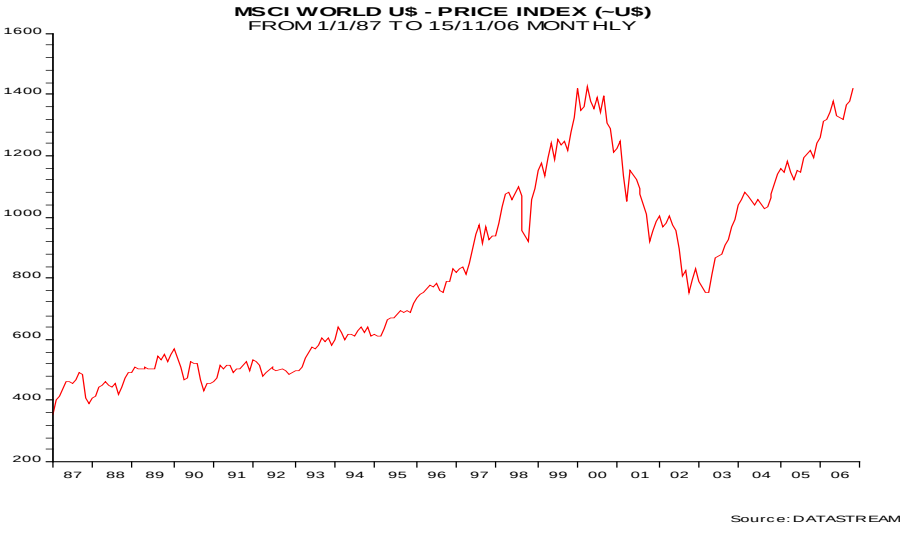
The above pattern is evident in the following figures. Figure 1.3 illustrates the worldwide financial services M&A trend between 1987 and 2006 in terms of the quarterly total values (U.S. dollars, millions) and number of deals, while the respective trend of the stock markets, as captured by the MSCI world index, is illustrated in Figure 1.4.

Figure 1.3. M&A deals in the financial services industry



Source: Thomson One Banker

Figure 1.4. MSCI world index



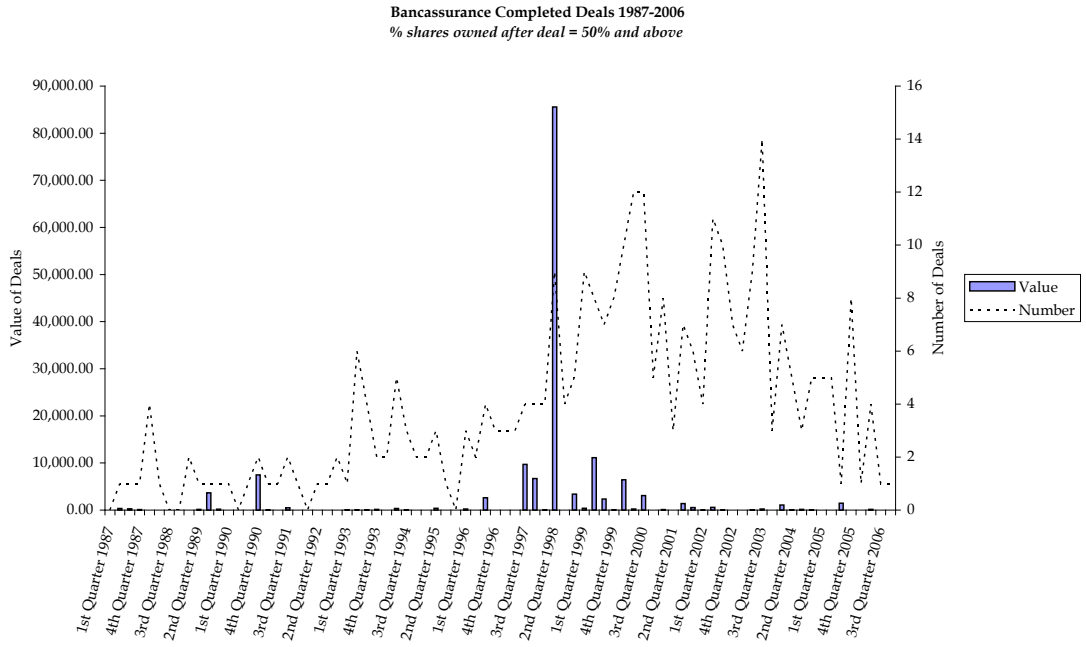
During the same period, the financial services industry has also witnessed a considerable increase in international cross product M&A activity and more specifically, in bank-insurance partnerships. Thomson Financial statistics reveal that during the period of 1987-1991, the world has observed 22 bank-insurance deals valued at $12.7 billion. In the following five year period, although more bancassurance deals were completed with a total of 42 deals, their total value dropped 68% to $4 billion. However, with the emergence of multibillion dollar deals, such as the Citicorp-Travelers[6], Allianz-Dresdner and Credit Suisse-Winterthur mega-mergers, among others, bancassurance has taken off, with a total number of 131 deals valued at $131 billion during the period 1997-2002. Similar to the trend in the financial services sector, the bancassurance trend has also slowed down in the 2002-2006 period, during which 110 deals were completed with a total value of $4 billion. Bank-insurance deal activity followed more or less the same pattern globally, with the exception of the Africa/Middle East, Japan and South America regions, where regulation has somewhat restricted the expansion of the phenomenon[7].

The following figure illustrates the pattern of the international bancassurance M&A trend between 1987 and 2006, in terms of the quarterly total values (U.S. dollars, millions) and number of deals. It is worth noting that the large spike observed in the value of deals in 1998 is largely attributable to the Citicorp-Travelers merger.

[6] By joining their banking, brokerage and insurance divisions on October 8, 1998, Citicorp and Travelers Group completed an $84 billion mega-merger that formed the largest firm in history. The merged company, named Citigroup, had all the characteristics of a “financial supermarket”, being able to underwrite and sell insurance products in addition to the wide variety of banking and investment services. This mega-merger not only shook the financial services arena because of its size and prospects, but also created regulatory implications given the fact that Citigroup was the first U.S. company to combine banking with insurance underwriting since the Great Depression. This merger was of great significance for the future of bancassurance since it directly lobbied regulators to introduce new legislation that would allow the interface between banking and insurance in the United States.

[7] For a more detailed representation of the bancassurance M&A statistics both at the global and regional level see Table A.4 in appendix A.

Figure 1.5. Bancassurance M&A deals



Source: Thomson One Banker

1.3. THEORETICAL FRAMEWORK AND MOTIVATION

According to Berger, Molyneux and Wilson (2009), Goddard, Molyneux, Wilson and Tavakoli (2007), and Herring and Santomero (1990), among others[8], this wave of consolidation can be largely attributed to technological and financial innovations. Specifically, technological advances have facilitated the emergence of new capital market products that introduced direct competition to traditional financial intermediaries' services. This has resulted in an international disintermediation process, with capital flows being reallocated from financial intermediaries to capital markets (Walter, 2009). This disintermediation process, coupled with the increased competition from international firms due to globalisation, had a radical impact on the financial statements of traditional intermediaries.

Specifically, banks have experienced significant reductions in their interest rate margins and subsequently their net income, while insurers have seen their product prices being squeezed due to competition, their distribution costs[9] skyrocketing, and

[8] See chapter 3 for a detailed review of the literature.
[9] These costs refer to the fees charged by traditional distribution channels such as insurance agents and brokers.

their revenues plunging. Furthermore, new, risk-based capital requirements imposed by supervisory authorities such as Basel II[10] for banks and the long-anticipated Solvency II[11] for insurance companies have intensified the need for strong capital bases and risk diversification. Given these alterations in the financial companies' external environment, it was crucial for financial institutions to reduce costs, search for alternative sources of revenues, and to strengthen their capital bases, in order to become more efficient and compete effectively within this new, antagonistic environment.

The response of financial institutions came in the form of a considerable wave of mergers and acquisitions between banks, investment firms and insurance companies, and in the subsequent eruption of financial conglomerates. This consolidation trend has stimulated a longstanding debate, which relates to the benefits versus concerns and opportunities versus threats of bank cross-product diversification and financial conglomerates (Flannery, 1999; Herring and Santomero, 1990; Parsons and Mutenga, 2009; Saunders and Walter, 1994; Staikouras, 2006; Walter, 1997)[12]. More specifically, at the firm level, some expect synergies from bancassurance and financial conglomerates. These synergies are expected at both the corporate and retail level, in the form of geographic and revenue diversification, scale and scope economies, efficiency, and cross selling opportunities[13]. Yet, others expect no diversification benefits and raise concerns for the existence of diseconomies of scale and scope and inefficiencies. Another stream of research contends that managers pursue private benefits in diversifying the activities of their institutions (Aggarwal and Samwick, 2003; Jensen and Meckling, 1976). At the public policy level, the main concerns relate to extended monopoly powers, conflicts of interest between the institutions and consumers, "too-big-to-fail" guarantees, and finally, increased

[10] Basel II is an international initiative that requires financial services institutions to have a more risk-based framework for the assessment of regulatory capital. The Basel Capital Accord sets international capital adequacy standards. In 1988, the Basel Committee on Banking Supervision established a method of relating capital assets, using a straightforward method of risk weights and a minimum capital ratio of 8%. The planned implementation date for Basel II is December 2006 with parallel running from January 2006.

[11] Solvency II that is expected to be fully implemented in 2009/2010 is an essential review of the capital adequacy requirements for the European insurance industry that aims to establish a revised set of EU-wide, risk-oriented capital requirements. These requirements are expected to help supervisors protect policyholders' interests by reducing the probability of prudential failure, and thus making consumer loss or market disruption less likely.

[12] A more detailed review of the theoretical contributions with respect to this debate is provided in sections 3.1 and 3.2.1 in chapter 3.

[13] The overall benefit of these synergies should lead to shareholder value maximisation that is considered as the primary motive for consolidation by Berger, Demsetz and Strahan (1999).

systemic risk (Acharya, 2009; De Bandt, Hartmann and Peydro, 2009; Ibragimov, Jaffee and Walden, 2010; Wagner, 2010). The interaction between market forces that demand convergence and the associated concerns by policymakers have led to a series of cyclical interactions between regulation, circumvention of the rules and re-regulation or deregulation (Kane, 1981)[14].

The above issues have led to a series of empirical contributions looking at the risk-return effects of bank diversification and financial conglomerates. Despite the various methodological approaches, the above strand of research offers mixed and/or inconclusive findings. For example, one stream of event studies looks into bank mergers and reveals negative excess returns for bidders and positive for targets around the time of the merger announcements (Houston, James and Ryngaert, 2001; Houston and Ryngaert, 1994), while others find evidence that focusing mergers are value enhancing, while diversifying ones are value destroying (DeLong, 2001). Mixed results are reported in studies that examine the impact of non-bank activities on the risk-return profiles of banks (Acharya, Hasan and Saunders, 2006; Baele, De Jonghe and Vander Vennet, 2007; DeYoung and Roland, 2001; Stiroh, 2004).

The question of whether diversification leads to premium or discount valuations, has led to another series of contributions with contradicting results. For example, Servaes (1996) and Berger and Ofek (1995) report a diversification induced discount, yet the latter suggest that the discount is smaller when related diversification is considered. On the contrary, Elsas, Hackethal and Holzhäuser (2010) report a diversification premium, whereas Villalonga (2004a; b) suggests that the discount is an artefact of Compustat segment data. Nevertheless, the discount reappears in Laeven and Levine (2007) who look into financial firms and control for the segment data issues. Studies that focus on the bank-insurance interface and its effect on the risk-return profiles of the involved institutions, also fail to offer an overall conclusive result. First, positive excess returns are reported in indirect event studies that look into the effect of the Financial Services Modernisation Act (FSMA, 1999) on the stock prices of banks and insurers (Carow and Heron, 2002; Hendershott, Lee and Tompkins, 2002; Mamun, Hassan and Maroney, 2005; Neale and Peterson, 2005; Yildirim, Kwag and Collins, 2006). Second, mixed stock price reactions by banks and insurers are reported in studies of the effect of rulings allowing the sale and

[14] See chapter 3 for a more detailed review of Kane's work on the interaction between regulators and financial firms trying to expand their scope and reach.

origination of insurance products by banks (Carow, 2001b; Cowan, Howell and Power, 2002), while positive excess returns are established in studies that look into the effect of the Citicorp-Travelers merger on the stock prices of peer financial institutions (Carow, 2001a; Johnston and Madura, 2000). Third, mixed results are reported in direct studies that delve into the effect of actual bank-insurance mergers on the stock prices of acquirers and/or targets. In particular, Cybo-Ottone and Murgia (2000) find positive wealth effects for the combined entity on a limited bank-insurance sample, Fields, Fraser and Kolari (2007a; b) report positive bidder excess returns, yet they do not differentiate between bank bids for insurance companies and bank acquisitions of insurance agents/brokers, while Chen, Li, Moshirian and Tan (2007) find negative bidder excess returns for a European sample of deals. The positive excess returns however, reappear when a sample of large international bancassurance deals is considered in Staikouras (2009).

Considering the above, the motivation for this research mainly stems from the existing controversies in the empirical literature concerning the risk-return effects of bank diversification into the insurance business. The current research focuses on the most comprehensive sample of bank-insurance mergers and seeks to address the following research questions: First, what is the effect of bank-insurance deals on the risk-return profiles of acquiring firms? Second, what are the firm and deal specific factors that determine bidder excess returns and risk? Third, what are the risk-return effects of bank-insurance deals on acquirers after controlling for the presence of ARCH effects in bank stock returns? Finally, do the above effects spill over to peer banks and insurance companies and, do spillover effects exhibit competitive or contagion nature?

1.4. Main Findings and Contribution

The effect of bancassurance partnerships on the returns of acquiring institutions is examined in chapter 4. The chapter sets out to explore the wealth effects of a large international sample of bancassurance deals, and in this way contribute to the bancassurance literature, where more research is deemed necessary. This is because the existing literature has provided either indirect evidence regarding the wealth effects of bank diversification into the insurance business, or mixed evidence in a limited number of studies that have examined the direct impact of a number of bank-

insurance deals. This chapter provides new and broader findings on the stock price reaction to all available bank-insurance deals that led to bancassurance structures between 1990 and 2006. Specifically, the sample involves 226 deals, where, 100 deals correspond to bank bids for insurance companies, 20 represent insurance company bids for banks, 90 incorporate bank bids for insurance agents/brokers and, 16 involve bank-insurance divestitures and spin-offs. A standard event-study methodology is employed to assess the abnormal returns on and around various time intervals around the deals' announcement. Deals between banks and insurance companies are isolated and assessed independently of deals between banks and insurance agencies/brokers. Moreover, sub-samples are formed to examine whether the bidder's nature (bank or insurer) leads to different market valuations. Further sub-samples are formed to examine the effects of geographic, size and cultural characteristics on bidder excess returns. Finally, all available bank-insurance divestments and spin-offs are examined, in order to provide further insight into the market expectations with regards to exits from bancassurance. The main findings are the following. On average, bancassurance mergers trigger positive and significant excess returns for bidders. Banks increase shareholder value in bids for insurance firms, while, on the contrary, insurance companies do not create value in analogous bids for banks. The univariate results also show that investors have higher expectations from domestic deals, large deals, and those initiated by U.S. acquirers. Finally, the analysis of bancassurance divestitures and spin-offs shows insignificant reactions by the market on and around their announcement.

Chapter 5 seeks to address the question with regards to the determinants of excess returns. By building on the sample of deals of chapter 4, this chapter sets out to explore the accounting and deal characteristics that play an important role in the subsequent market valuations, within a multiple regression framework. Specifically, a number of accounting measures and deal specific characteristics are considered as potential factors driving abnormal returns[15]. In summary, the cross section analysis yields the following results. First, bidders already reliant on significant amounts of non-interest income experience negative valuations around the announcement of bancassurance deals. Second, the market favours deals with greater potential for scale economies, and deals where the acquiring institution is U.S. based. Third, controlling

[15] The excess returns that are used as endogenous variables in the models are those estimated in chapter 4.

for other factors, bank bidders are found to lose value and domestic deals do not result in higher excess returns. Fourth, the decomposition of the sample into deals before and after the FSMA, reveals that deals before the Act are valued by investors based on estimates of bidder growth opportunities, the potential for scale economies and whether the deal was initiated by a U.S. financial institution, whereas deals announced following the passage of the Act are valued based on estimates of the bidders' capacity for further functional diversification and past profitability. Finally, the market does not consider any company or deal characteristics when valuing bank acquisitions of insurance agents/brokers.

Chapter 6 delves into the risk effects of bank-insurance deals and the subsequent evaluation of the factors determining the risk components of acquiring firms. Using the same sample of bancassurance deals, the intention of this chapter is to examine a) whether bancassurance deals affect the total, market and idiosyncratic risk of acquiring institutions b) the factors that determine the risk attributes of firms that enter into bancassurance deals and c) whether these factors change following the deals. The methodological framework employed is a risk decomposition approach that is used to estimate the risk components and is followed by cross section regressions that attempt to shed light on the relationship between a selection of factors and the estimated bidder risk attributes, on a pre- and post-deal basis. The main findings are the following. First, bancassurance deals do not significantly affect the total and idiosyncratic risk of acquiring institutions, yet, the exposure of banks to market risk is found to increase following bancassurance partnerships. Second, bank combinations with insurance agencies expose the former to higher systematic risk than bank acquisitions of insurance underwriters. Third, banks are more exposed to firm-specific risk than to market risk, while insurance companies are relatively equally exposed to both types of risk. Fourth, banks that bid for agencies are highly exposed to idiosyncratic risk. Fifth, the cross section analysis of the determinants of risk reveals that the additional non-interest income coming from bancassurance operations is no longer positively correlated with market betas following the mergers. Sixth, the negative and significant relationship between non-interest income share and unsystematic risk fades away following bank acquisitions of insurance companies, but remains significant after bank acquisitions of insurance agencies.

Finally, chapter 7 sets out to analyse the effects of an international sample of deals on the risk-return profiles of acquiring firms as well as the presence of wealth and risk

spillover effects of those partnerships across the financial services sector. Not only that, it measures the determinants of excess returns, using a selection of accounting and deal specific variables. This chapter represents a special application on a subset of 50 international banks that were involved in acquisitions of insurance firms and the stock returns of which exhibit ARCH effects. The methodological framework employed builds upon a Generalized Auto-Regressive Conditionally Heteroskedastic (GARCH) framework. In particular, this chapter examines a) the bidder equity response around bancassurance deals, b) the existence of wealth spillover effects, c) whether the nature of these effects is contagion or competitive, d) the determinants of bidder excess returns, e) the effect of bancassurance deals on the risk of bank bidders, f) the presence of intra and inter-industry risk-spillover effects, and g) the nature of these effects as contagion versus competitive. The main results are the following. First, bank acquisitions of insurance firms lead to positive bidder stock valuations and reduce the risk of the acquiring firms. Second, the results verify the presence of contagion effects from these deals and the fact that the reaction of insurance peers is stronger and slower to compete. Third, the market takes into account factors such as the bidders' leverage, the size of the deal, the method of payment, growth opportunities and whether the acquirer is located in the U.S., when evaluating bank-insurance deals. Fourth, the bank-insurance interface reduces the total, market and idiosyncratic risk of acquiring firms and, finally, the risk reduction spills over to bank/insurer peers.

Considering the above, the main contributions of this research are the following: First, the most comprehensive sample of bank-insurance deals is employed. Second, deals between banks and insurance companies are examined separately from deals between banks and insurance agencies/brokers. This is because the differences in the risk-return profiles of banks when they merge with insurance underwriters as opposed to merging with insurance agents/brokers, can distort the findings. Third, this is the first study that examines the wealth effects of the available bank-insurance divestitures and spin-offs. Fourth, this is the first time a risk decomposition approach is being applied to examine the overall effect of bancassurance partnerships on the risk components of acquiring firms before and after the deals' announcement / completion. Fifth, the current study provides original evidence with regards to the determinants of total, market and systematic risk on a pre- and post-merger basis. Sixth, this is the first time a GARCH methodology is applied within an event study

and risk decomposition framework, to study the effects of bank-insurance partnerships. Finally, the current research offers novel results with respect to the existence of risk-return spillover effects from acquirers to their bank and insurance peers.

1.5. OUTLINE OF THESIS

The remainder of this study is organised as follows. Chapter 2 focuses on the qualitative aspects of the bancassurance model. It offers a definition for the bancassurance model and proceeds with a review of the historical roots of the phenomenon. In addition it analyses and compares the different ways in which the model can be implemented. The regulatory framework with respect to the interface between financial companies and the subsequent evolution of the bank-insurance model are then analysed. Chapter 3 sets out to organize and review the existing body of research on financial conglomerates and bancassurance. More specifically it involves a thorough discussion of both the theoretical contributions on the phenomenon and a critical analysis and summary of the empirical contributions on the effects of bank diversification into the insurance business.

Chapter 4 provides a thorough examination of the wealth effects of bank-insurance deals and divestitures/spinoffs. Chapter 5 analyses the determinants of bidder excess returns using a selection of accounting and deal specific variables. Chapter 6 delves into the risk effects of bank-insurance deals before and after the respective announcements. In addition, the relationship between total, market and idiosyncratic risk and a variety of accounting variables is assessed, on a pre- and post-deal basis. Chapter 7 represents a special GARCH application that looks into the wealth and risk effects of large bancassurance deals on bidders as well as the determinants of excess returns. Moreover, the existence of wealth- and risk-related spillover effects to the banking and insurance industry is also examined.

Finally, Chapter 8 concludes this thesis. In particular, it summarises the main contributions and discusses the findings and their application to the financial services industry. In addition, it also considers the limitations of the current research and sets out possible avenues for future research.

2. THE BANCASSURANCE PHENOMENON

This chapter aspires to explore the current knowledge on the concept of bancassurance. Section 1 introduces the bancassurance model by discussing its background, and historical roots. Moreover, it attempts to build on the current knowledge in order to provide an overall definition for the phenomenon[16]. Section 2 provides a timeline of the regulatory environment across a number of regions and discusses the various adjustments made to it in order to accommodate bancassurance. Finally, section 3 provides a detailed examination of the evolution of the model around the globe, in terms of current practices and market penetration.

More specifically, the rest of this chapter presents an historical overview of the bancassurance phenomenon, in an attempt to trace its roots and provide a straightforward definition. It also involves a close examination of the different levels of integration between banks and insurance companies that are required to put bancassurance into operation. The critical examination of the advantages and disadvantages of each level of bancassurance integration sets the foundations, upon which an initial distinction between the potentially successful bancassurance strategies and those that are too risky to be put in practice, can be made. The regulatory background that has been instrumental in influencing the expansion of the bancassurance phenomenon is also examined. Finally, the analysis of the evolution of the model entails a statistical overview of the penetration and expansion of bancassurance in various parts of the world. An important aspect of the above analysis is that it provides a fertile terrain for initial conclusions regarding the critical success factors for bancassurance. In particular, those factors include the political, regulatory, economic, demographic and cultural characteristics of each country, which are expected to play a central role in the evolution, and the respective success or failure of bancassurance

[16] It is important to note that the definition of bancassurance still remains a source of debate.

2.1. BACKGROUND

The fundamental changes in the financial services industry over the past decades such as advances in technology and deregulation had a radical impact on the infrastructure of the financial services industry.

One of the most considerable transformations undergone by the financial services segment over the past decade has been the emergence and expansion of bancassurance. Its appearance was the outcome of a well structured reaction of the banking and insurance sectors to the fundamental changes in their external environments. Assigning a rather philosophical dimension to this argument, one can assert that the development of bancassurance is somewhat similar to a well witnessed phenomenon in nature; that is evolution. Within nature's ever-changing external environment, organisms are constantly evolving in order to adapt and survive, and typically, the most successful ones are those which eventually acquire hybrid characteristics. In a somewhat similar vein, in order to acclimatise and thrive in the transformed financial industry, banks and insurance companies evolved by forming a hybrid or synthetic entity; that is bancassurance.

In its simplest form, the bancassurance model entails the provision of insurance products through a bank's channel. The insurance dictionary of LIMRA[17] defines bancassurance as "*the provision of life insurance services by banks and building societies*". Nonetheless, although one might imagine that the model only applies to life insurance products that are exclusively offered to individuals, practice has revealed that bancassurance has, in some cases, made victorious inroads into the non-life insurance lines and that it is also on the rise in the small-medium enterprise sector. Additionally, the phenomenon is much more than a novel life insurance distribution network, if one takes into consideration its history, its evolution and the diverse strategies that banks and insurers have so far implemented around the world. In one of its publications[18], Munich Re gives a more systematic definition of bancassurance: "*Bancassurance is the provision of insurance and banking products and services through a common distribution channel and/or to the same client base*". An holistic approach however, requires a categorisation in terms of the organisational relationship

[17] The Life Insurance Marketing and Research Association.
[18] See Munich Re (2001).

between the bank and the insurer into six groups, starting from the more integrated models to the less integrated ones[19].

- **Complete Integration** (underwriting, distribution and management at group level – supported by a single capital base)
- **Partial Integration** (insurance activities conducted through separately capitalized subsidiary owned by bank or universal bank)
- **Holding Company Structure** (bank and insurer as separate subsidiaries owned by a holding company)
- **Joint Ventures** (bank and insurer provide capital to form joint venture firm)
- **Strategic Alliances** (tie-ups between bank – insurer to pool various resources)
    - Informal agreements – no equity ties
    - Formal agreements – cross equity ownerships
- **Distribution Agreements** (banks acting as an intermediary; broker/agent)
    - Exclusive
    - Non-exclusive

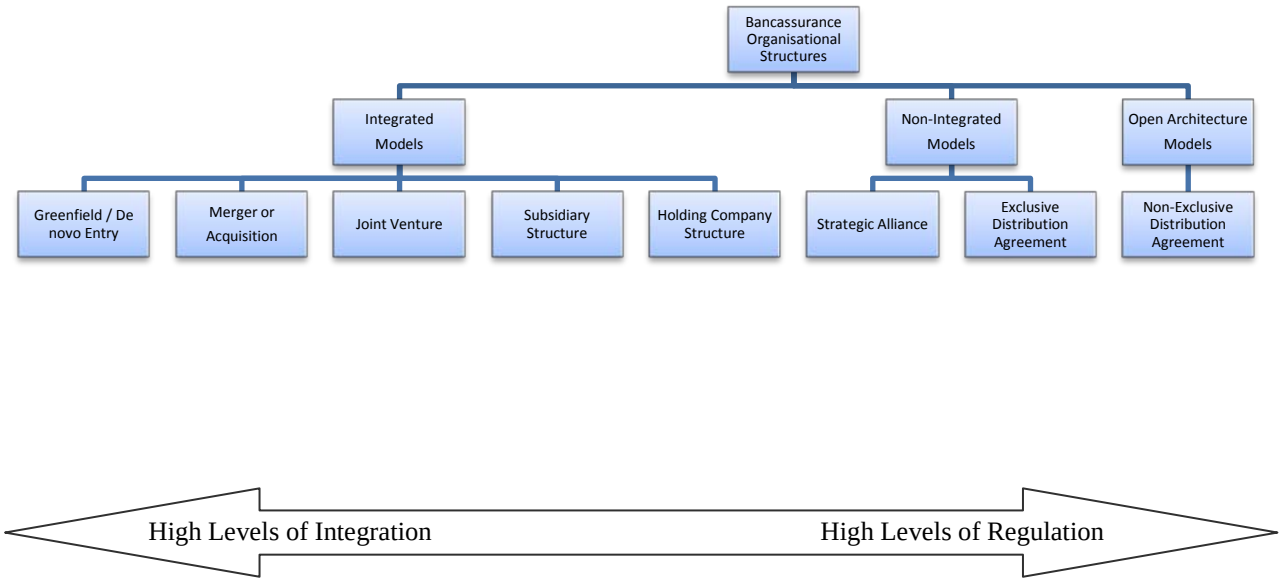
Taking into consideration the various forms under which bancassurance can be implemented, a better definition for the phenomenon is offered in Staikouras (2006) who states: "*The notion of bancassurance is essentially the provision of financial – and insurance – related products through a single corporate provider. The phenomenon, however, has taken various forms over the years, such as provision of services by different subsidiaries of the same holding company, often using different channels, or embracing alliances of two separate business entities aiming to sell each other's products*".

Figure 2.1 below offers a graphical representation of the different organisational structures under which banks and insurers can work together in offering

[19] See Saunders and Walter (1994), Skipper Jr. (2000) and Walter (1997). Note that the analysis here is restricted to the integration of banking and insurance. However, the same categorisation can also be applied when more financial firms are involved, within a "universal banking" or "financial conglomerate" setup.

bancassurance services. On the left hand side of the diagram one can find bancassurance models that require a higher level of integration between the companies in cooperation. These models are quite common in countries where regulation is less restrictive with respect to the combination of banking and insurance. Moving towards the right hand side of the diagram, the bancassurance models become increasingly open, requiring a less significant degree of integration between the cooperating companies. These models are generally applied in countries where strict regulatory firewalls are imposed on the affiliation between banks and insurance companies. This relationship between the degree of integration and regulation is graphically illustrated in the bi-directional arrow located at the bottom of the diagram. It must be noted that although regulation is a major determinant of the choice of bancassurance model, there exist many other factors that influence this decision. These factors are examined in the following paragraphs.

Figure 2.1. Available organisational structures for bancassurance



More specifically, when full integration is adopted, bank and insurance services are underwritten (produced), marketed/distributed as well as financially supported by the same corporation using a single capital base. As such, this model generates an environment where the entire spectrum of the integrated company's diverse activities is managed at the firm-wide level. This structure was adopted by Citigroup after the merger between two of its subsequent components, Citicorp and Travelers Group in 1998. Under this model the bank or holding company develops, underwrites and sells its own insurance products through its own distribution network and under its own brand. In order to identify the opportunities and threats arising out of this model a further categorisation is required, with respect to the lines of insurance involved. This includes life insurance, personal non-life insurance and commercial non-life insurance. Life insurance underwriting can be easily carried out by banks since it is not very complicated. With respect to the inherent risks, life insurance does not represent a hurdle for banks given that actuarial science has been proved to be very precise in estimating the probability distribution of human life. As a result, banks do not have to set aside a great deal of capital to cover their liabilities. Nevertheless, the experience from the industry suggests that life insurance does not represent a great source of profits and that during the last years it is experiencing a drastic downturn in its attractiveness. Although new products, such as unit-linked contracts were developed during the past decade, banks should be very careful in selling them. Bank clerks do not have the expertise to sell those complex products effectively, and in case they are not successfully trained, they can lead their institution to mis-selling scandals, damaging their value and reputation.

On the other hand, non-life insurance underwriting is far more complex than life insurance. Not only requires deep knowledge of specialised risks that banks are not familiar with, but also creates the need for a set of complementary activities, such as intense risk assessment, risk pricing, claims handling, loss adjusting etc., that deviate from a bank's core competencies. Even though general insurance is far more profitable than life insurance during the upswings of the underwriting cycle, it can become devastating during its downturns; and once again, bank managers do not have enough experience on the dynamics of the underwriting cycles. Moreover, the non-life market and especially the commercial lines are experiencing chaotic problems that during the last decade have almost shattered the insurance industry. Insurers are forced to pay huge claims for long-tail risks that were neither anticipated in the past

nor correctly priced. As such, non-life insurance and especially commercial lines underwriting is not considered as a fruitful strategy for the bancassurance model, in view of the fact that it is very risky, capital intensive and it does not provide a steady flow of profits.

Moving down the integration ladder, partial integration is achieved via a parent-subsidiary configuration with a bank parent holding an insurance subsidiary or vice versa. In this case the parent company owns the subsidiary which is independently capitalised and produces either banking or insurance products depending on the orientation of the parent company. This is the dominant model in the U.K. with the examples of Barclays plc and Lloyds TSB.

The third level of integration entails the existence of a holding company that holds a controlling stake in the bank and insurance affiliates which are separately incorporated and capitalized. This structure was the U.S. norm up until the passage of the Financial Services Modernisation Act of 1999. The opportunities and threats stemming from these two models will be briefly analysed, given the models' close resemblance to the full integration one, which was analysed above. Proponents of this model argue that bank subsidiaries are strengthened when a bank holding company (BHC) operates nonbank subsidiaries profitably, and that even if those firms incur losses, bank subsidiaries are immune by the legal separateness of the BHC corporate structure. Moreover, nonbank activities offer opportunities for diversification and can consequently reduce the risk of failure of bank subsidiaries (Boyd and Graham, 1986). Opponents on the other hand, argue that bank subsidiaries are not insulated by the corporate structure of the BHC and might indirectly incur losses in case a nonbank subsidiary experiences financial trouble (Brewer, 1989). Indeed, if a bank acquires/sets up its own insurance subsidiary, or, if both are subsidiaries of the same holding company, all participants will be indirectly exposed to the same underwriting risks. This is mainly true if one considers that the underwriting profits or losses of the insurance subsidiary will be either transferred to the balance sheet of the bank or to the financial statements of the holding company. Second, a BHC might engage in more risky activities if it is allowed to have a broad choice of investment opportunities (Boyd and Graham, 1986).

Moving on to the less integrated models, joint ventures are separate legal entities that are formed through the joint contribution of capital and pooling of resources from two or more parties (bank/s and insurer/s). Under such configuration, control as well

as revenues, expenses and risk are equally shared by the companies that initiated the venture.

Further on, strategic alliances can be considered as a "connecting bridge" between the integrated and non-integrated models, as they represent a hybrid form of organisational structure. Strategic alliances exhibit a hybrid character due to their ability to bring together various coordinating functions of integrated companies with the decentralised structure of autonomous companies (Chan, Kensinger, Keown and Martin, 1997). The level of risk involved under the strategic alliance models largely depends on whether there are equity ties between the partnering companies or not. In the case of the presence of formal agreements with equity ties, both parties are indirectly exposed to each other's risks to the extent of the cross-ownership of shares. In case of no equity ties, although financial risk is minimized, there still exist operational risks that are discussed below.

Last but not least, distribution agreements can be positioned outside the integrated models, given that under such configuration, the bank and insurance companies are not affiliated in any way that requires pooling of resources. What brings the two companies together in this case is some sort of a unilateral or bilateral formal agreement under which one or both companies' services are cross-sold to their indigenous client bases respectively. Such arrangements can either have an exclusive character, limiting one or both parties to the distribution of the counterparty's services only, or have a non-binding nature, leaving both parties free to form analogous agreements with other companies. As for the opportunities and threats arising out of this model, there is little concern about the inherent risks. This activity falls into the set of the core competencies of banks, because they exhibit great ability in selling products. By using this strategy, banks are able to boost their profitability levels for two main reasons. First, because they can earn a steady flow of risk-free commissions from the insurers and second because their distribution costs will be marginal. Brokerage activities can become very profitable if the institution that undertakes them is capable of achieving high sales volumes and this is not uncommon in banking. Nonetheless, as suggested in Nurullah and Staikouras (2008), insurance brokerage activities entail operational risks as well as the risk of potential professional liability for errors and omissions, within the course of marketing and administering the sale of such products. Furthermore, recent developments in regulation and changes in public

awareness[20] are not in favour of brokers, since nowadays class-actions against such companies, especially for mis-selling scandals are not unusual.

Overall, it seems that the best bancassurance strategies according to their risk-return profile are insurance broking and life insurance underwriting. They both are less risky than non-life underwriting and, on average, provide a steady flow of income streams. A further comparison of life insurance underwriting and brokerage suggests that the latter is the most beneficial for banks given that it is less risky and exploits one of the core competencies of banks; that is, selling. As suggested in Felgran (1985), banks would not extract much gain from providing insurance underwriting services, because of the elevated risk involved. Finally, one may argue that bancassurance is a very promising strategy for banks and insurers. However, both institutions should be very careful in determining their strategies, because although bancassurance may seem to enable them to exploit synergies, it is pragmatic this might come at a cost.

As such, the selection of the appropriate bancassurance model, both in terms of organizational structure and insurance activities depends on a battery of diverse exogenous and endogenous drivers. With respect to the former, the political, regulatory, economic, demographic and cultural characteristics of each country play an important role in the selection of the correct organisational approach. Moreover, the endogenous or company-specific factors such as the business culture/cycle, organisational focus, strategic targets, brand recognition, market shares etc. are of great importance in choosing the bancassurance model that best fits to the company's strategic and operational orientation (Staikouras, 2006)[21].

[20] This mainly refers to the recent "deep pocket" approach by many claimants, especially in the insurance world, which in order to obtain large amounts of compensation are starting to sue brokerage companies or their directors and officers (known in insurance terms as D&O claims), on the grounds of mis-selling, errors and omissions etc.

[21] Staikouras (2006) analyses the dynamics underlying the provision platform of hybrid financial institutions and elaborates on the endogenous and idiosyncratic risk-success factors of bancassurance operations. A more detailed analysis of this paper is provided in chapter 3.

2.2. REGULATION

Regulation has always played an important role in the evolution of the financial services industry. One of the central responsibilities of the regulatory authorities is to facilitate constant growth in the industry and consequently to the national economy without risking the stability of the respective financial system. For instance, a rapid liberalisation of the financial services industry without previous implementation of a regulatory 'safety net' would pose significant risks on consumer protection. On the other hand, it is pragmatic that strict regulation and consumer over-protectionism may slow down the evolutionary process in the industries and can slowdown economic growth. As such, a regulatory system that continuously controls and counterbalances the interests of the industry with those of the consumers is considered vital.

The regulatory environment has been instrumental in influencing how the bancassurance phenomenon has evolved, particularly in the U.S. In contrast to the European financial services industry, that was liberalised in 1989 when the Second Banking Directive was adopted by the EU Council of Ministers[22], the industry in the United States remained extremely fragmented until 1999. In the U.S., regulation dating back to the 19th century constrained the geographical expansion of banks into other states[23] as well as their ability to affiliate with other types of financial firms, such as investment banks, securities firms, and brokerage and insurance companies[24]. Due to these legal barriers, U.S. banks were unable to benefit from scale and scope economies through consolidation.

The majority of the legislative barriers between banks and non-bank financial companies were imposed by Section 24 of the National Banking Act of 1864. Under this section of the Act, banks were permitted to exercise "all such incidental powers as shall be necessary to carry on the business of banking". As such, all the activities that were considered as 'non-incidental' to banking were prohibited.

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[22] The implementation of the Second Banking Directive by all 15 member states was completed between 1991 and 1994. For further details, the interested reader is referred to Chen (2007).

[23] The geographic expansion of banks into other states before the 1930's was heavily regulated by the Federal as well as State Authorities up to 1927, when the McFadden Act was passed. However, the latter's passage did not introduce significant relaxations. See the following paragraphs for a further analysis.

[24] In chronological order, section 24 of the National Banking Act (1864), section 20 of the Banking Act (1933) and the Bank Holding Company Act (1956). See the following paragraphs for a further analysis.

Further on, in the aftermath of the stock market crash of 1929, the United States was in deep economic recession. According to Benston (1990), 40% of the banks had either failed or been forced to merge. Banks were considered to be responsible for the chaotic situation in the financial system because of the general concern that they were engaging in very risky and speculative activities through their securities subsidiaries.

Section 20 of the Banking Act[25] that was enacted in 1933, opted to reintroduce stabilisation and public trust in the financial system by prohibiting commercial banks from affiliating with companies that were "principally engaged" in the issue, flotation, underwriting, sale or distribution of securities. In simple terms, what the Act accomplished was the separation of commercial and investment banking. Nevertheless, the findings of the literature suggest that the concerns in the aftermath of the crash were unfounded and illogical (Kroszner and Rajan, 1994; Puri, 1994). Moreover, in an attempt to provide a rationale for the separation of commercial and investment banking, Ang and Richardson (1994) examine the performance of bond issues underwritten by different classes of underwriters prior to the passage of the Glass-Steagall Act. They find no evidence that bonds underwritten by security affiliates of commercial banks prior to the passage of the Glass-Steagall Act, were in any way inferior to those underwritten by investment banks. They conclude that the bad underwriting practices of two banks[26] may have condemned the whole financial services industry.

In the subsequent years, commercial banks managed to circumvent both restrictions imposed by the National Banking Act (1864) and the Glass-Steagall Act (1933). The loophole was found in that holding companies were not explicitly forbidden to own a commercial bank, investment bank or insurance company. Therefore, through holding company structures, commercial banks managed to affiliate indirectly with other types of financial companies. In order to close that gap, regulators brought into force the Bank Holding Company Act in 1956. What the Act accomplished was to confine holding company affiliates to activities that were "closely related to banking".

[25] The Act is also formally known as the Glass-Steagall Act. In particular, Sections 16, 20, 21, and 32 of the Banking Act (1933) are designated as the Glass-Steagall Act.

[26] Ang and Richardson (1994) also isolate the performance of bonds underwritten by National City Company and Chase Securities Corporation. They find that these two banks were issuing bonds of lesser quality than other bank affiliates.

In addition to these restrictions, state level legislation as well as the Federal Government in the U.S. limited the geographical expansion of commercial banks. Prior to the McFadden Act of 1927, banks were heavily regulated both by the Federal Authorities and individual states and were not permitted to have any branches at all. After the passage of the McFadden Act banks could only set up branches in the community of their main office. The amendment of the McFadden Act in 1933 granted permission to national banks to be able to establish branches outside the community of their main office, including other states. Nevertheless, banks were captives of a provision that required state-level law to be granting equal authorities to state banks. As such, banks found themselves in a position of being unable to expand geographically since, even after the Act's amendment, the majority of state laws prohibited external banks from acquiring in-state ones. In order to circumvent these restrictions, banks established holding companies which, at the time were not prohibited from acquiring banks in other states. As a result they achieved interstate expansion under the canopy of holding companies. In a delayed response however, regulators managed to close that loophole by introducing the Douglas Amendment of the Bank Holding Company Act in 1956 which brought into force a provision identical to that of the McFadden Act's Amendment; that is, holding companies were prohibited from acquiring out-of-state banks unless state law provided otherwise.

Not surprisingly, these pieces of legislation that were introduced in order to safeguard consumers and maintain stability in the financial system, inevitably slowed down the evolutionary process in the U.S. financial services industry. In other words, at the time when players in other industries were consolidating at a torrid pace, the financial services industry was highly fragmented and unable to evolve and benefit from consolidation. Commercial banks, insurers, investment banks, securities firms and brokerage houses could neither become larger through interstate mergers or acquisitions, nor diversify their product portfolios via cross-industry consolidation.

During the following years, competitive pressures increased the need for consolidation in the financial services industry. Financial companies started to press regulators to eliminate most of the barriers that hampered their efforts to consolidate. As a result of this pressure, most of the barriers were progressively removed by the regulatory authorities, as will be seen below.

On 30 April 1987 the Federal Reserve authorised Citicorp, Bankers Trust and J.P. Morgan to engage in limited underwriting and dealing in a set of securities. That

included, municipal revenue bonds, mortgage related securities, consumer receivable related securities and commercial paper. This decision was based on the interpretation of the word 'principally' within the Glass-Steagall Act. The Federal Reserve held that subsidiaries would not be principally engaged in underwriting if they derived no more than 5% of their gross revenues from impermissible underwriting and dealing within any given two-year period. On 18 January 1989, the Federal Reserve made a step forward towards liberalisation in allowing BHCs to underwrite corporate debt and equity. It was the first time since the passage of the Glass-Steagall Act that banks could expand into the corporate underwriting market. On 13 September 1989, the Federal Reserve raised the limit on gross revenue from the initial 5% to 10%. In a last attempt to press the Congress to repeal the Glass-Steagall Act, the Federal Reserve expanded the limit to 25% and concurrently reduced the regulatory barriers between commercial and investment banking.

With respect to the geographic expansion of commercial banks, although individual states had started passing bills that permitted interstate banking and branching since 1982, it was not until the passage of the Interstate Banking and Branching Efficiency Act (IBBEA)[27] that banks became totally free to expand into other states. The Act, which was enacted in 1994, repealed the Douglas Amendment and accomplished to consolidate a chaotic set of Federal and state regulations, by allowing BHCs to acquire banks in any state with a few trivial restrictions[28].

The majority of the remaining barriers between financial institutions that were imposed by the National Banking Act (1864), the Banking Act (1933), and the Bank Holding Company Act (1956) were removed by the Financial Services Modernisation Act (FSMA)[29] of 1999. Under this Act, banks could affiliate with investment banks, insurers and securities firms through a holding company structure. What is more, the passage of the Act sought to remove the substantial asymmetries between players in the financial services arena that previous regulations had systematically fashioned. More specifically, it targeted one of the most serious anomalies in the financial

[27] The Act is formally known as the Riegle-Neal Act

[28] These restrictions correspond to a set of conditions that must be met by a BHC in order to be granted authorisation to acquire out-of-state banks; a) it must be financially safe and sound in terms of its capital adequacy and managerial competency, b) it has to comply with deposit concentration limits that restrict it from controlling more than 10% of nation-wide deposits or 30% of deposits in the respective state and c) its community reinvestment record must be checked by the Federal Reserve Board.

[29] The Act is also known as the Gramm-Leach-Bliley Act.

services sector; the fact that commercial banks were relatively allowed to acquire investment banks and insurance companies, whereas the latter were not permitted to own commercial banks. The FSMA makes financial conglomeration achievable, since it is possible for a single financial institution to conduct simultaneously the business of commercial banking, investment banking, investment management, insurance and securities underwriting. However, this is only permitted at a holding company level or alternatively through subsidiary structures. On the regulatory side, the FSMA has consolidated the supervision of bank holding companies, with the Federal Reserve being the 'umbrella' regulator and the Securities and Exchange Commission regulating the banks' securities activities

Overall, the long anticipated FSMA paved the way for the creation of a 'one-stop-shopping' financial environment that promises to benefit all participants; namely the financial institutions and their stakeholders as well as the regulators and the consumer.

2.3. MARKET PRACTICES

The first pioneers that ventured into the field of bancassurance were the French, where in the early 1970s ACM (*Assurances du Crédit Mutue*l) life and general decided to bypass the middlemen for loan protection insurance by insuring their own banking clientele themselves. Spanish banks have followed the French paradigm in the early 1980s when Banco de Bilbao Group acquired EuroSeguros SA. However, due to legal barriers, their control was only financial until 1991 when those barriers were subsequently removed.

Although the phenomenon, as it is known today, first appeared in France and Spain in the 1980s, it rapidly expanded across Europe until the mid-1990s and continued to spread in other parts of the world such as the USA, Canada and Australia. Moreover, banks and insurers have started making inroads into emerging markets such as Asia and South America since the early 2000s with bancassurance strategies being implemented there at a torrid pace.

In the European front, the bancassurance market was totally liberalised by the Second Banking Directive (1989) that has been implemented by all member states in 1991. Due to the early removal of the restrictions imposed on the affiliation of financial services in the EU when compared to the practices in other continents, the model has achieved a considerable success in the majority of the European member states. Overall, bancassurance enjoys a market share of approximately 35% of life insurance sales in the European market and is the prevailing method of distribution in several countries such as Belgium, France, Italy, Spain and Portugal. Nevertheless, bancassurance remains a negligible distribution channel in the majority of non-life insurance markets in Europe. According to a recent report by Swiss Re[30], the average share of bancassurance in the European non-life market is 10%. The non-life market in Europe is clearly dominated by agents and brokers, which are followed by other channels such as direct sales. However, bancassurers have achieved a significant penetration in some market segments related to their banking activity. Additionally, bancassurance is gaining market share as a growing number of banks enter the non-life insurance market to reinforce their customer loyalty. Figure 2.2 shows the market share by distribution channel in key European markets.

[30] See Wong, Barnshaw and Bevere (2007).

We can easily observe that the model has achieved significant levels of penetration (above 50%) in countries such as Finland, Norway, Italy, Belgium, France, Spain and Portugal.

More specifically, France, which is considered as the "birth place" of bancassurance, has witnessed a vivid development and expansion of the bank-insurance model between 1990 and 2001, with its levels of life insurance penetration rising from 40% in 1990 to 66% in 2001. Since then, the expansion of bancassurance in France has somewhat slowed down, with the current market share being 64%. It is worth noting that the rapid growth of bancassurance in France has been facilitated by a favourable tax-system, with a number of insurance products that enjoy tax privileges being only available through banks. However, this growth has somewhat settled down after 2000, as bancassurance reached zenith levels of life insurance market share. This might be linked to the gradual reduction in tax advantages related with life insurance products in the second half of the 1990s and the 2000s. The deceleration of the expansion of bancassurance is one of the main justifications behind the French bancassurers' growing desire to expand into the comparatively 'virgin' – from the bancassurance perspective – non-life market, where the model only accounts for about 10% of all collected premiums. It is expected that in the near future, French banks will be controlling a large part of the personal non-life market though their subsidiaries. In Belgium, bancassurers have, up until recently, been controlling the life insurance market with a 56% share in premiums. Similar to France, bancassurance in Belgium has also somewhat slowed down, with the current market share in the life insurance market being 48%. It is also worth noting that the five market leaders in Belgium belong to either a banking or to an insurance group (Staikouras, 2006).

Bancassurance enjoys considerable success in Spain and Portugal, with market shares of 77% and 80%, respectively. More recent figures show a deceleration in Spain, where bancassurance currently controls 72% of the premiums and an expansion in Portugal where it accounts for 88% of the market. The success of the phenomenon in Spain is mostly attributable to the presence of an extensive network of regional building societies as well as to the positive tax system that favoured the development of bancassurance products. Similar to France, these tax-benefits have been gradually reduced, which might be one of the reasons why bancassurance has lost about 5% in market share since 2005. On the other hand, although bancassurance in the Portuguese market exhibits a record penetration level, the latter only represents

€4 billion in premiums and this is due to fact that Portugal represents a relatively small market. In addition, the Spanish and Portuguese bancassurers are currently facing the same challenges as their French peers, seeking an expansion into the non-life lines in order to increase their profits.

Furthermore, the Italian bank-insurance market has witnessed remarkable growth in the aftermath of the Amato law, effective July 30 1990. Its passage not only made the affiliation between banks and insurance companies possible, but also provided the appropriate regulatory approvals with respect to the ability of banks to sell insurance products – produced by one or more partner insurers – to their client base. However, several restrictions still apply. First, insurance policies must be underwritten by the insurance company, while banks have no permission to alter them. Second, it is obligatory for bank staff to be trained by the partner insurer/s and third, several other conditions which are laid down in the exclusivity principle, must be met by the bank when selling insurance contracts to its clientele. Nevertheless, the presence of a favourable tax environment promoted growth in life insurance and effectively in bancassurance. As figures suggest, bancassurance in Italy grew from 8% of all life insurance premiums in 1992 to 58% in 2005 and enjoys a current market share of 59%. On the general insurance side however, the model has been unsuccessful, accounting for less than 1% of the overall market, which is clearly dominated by agents who control more than 85% (2005 figures). Although current market figures suggest an expansion of bancassurance share in the non-life market in Italy, the figure still stands at around 2%. Nonetheless, this can be viewed as a considerable opportunity for the future expansion of the model in Italy.

Despite the considerable success of the phenomenon in the above regions, countries such as the Netherlands, Germany, United Kingdom and Greece have opted for more traditional networks such as brokers and agents. In the UK in particular, the Financial Services Act of 1986 has somewhat restricted the expansion of the model, by allowing only authorised financial advisers who had obtained minimum qualifications to sell most investment-based products. This has, to a large extent, limited the ability of branch staff to sell insurance products. In addition, contrary to France, the U.K. tax system does not provide any sort of tax advantages for insurance products purchased through banks. The market share of bancassurance in the UK has been constrained to a mere overall 18% and to 10% of new premiums, yet the restructuring undergone by the market in the early 2000s, coupled with the creation of

stakeholder pensions, generate substantial growth opportunities for the phenomenon (Benoist, 2002; Falautano and Marsiglia, 2003). Despite these efforts, bancassurance in the U.K. has yet to take off since it currently enjoys a 20% share. Similar to other European countries, bancassurance in the U.K. exhibits low penetration in the non-life market, which currently stands at 10%. Two other facts are also responsible for the rather futile operation of bancassurance in the U.K. First, its development has been somewhat constrained by the strong role of independent financial advisors (IFAs). Second, the U.K. has a rather mature private pensions market that has led to the emergence of more complex financial products. In turn, this has created an important role for brokers and sidelined bancassurers. Similar issues are present in the Netherlands, where the model enjoys a market share of 32%.

In a somewhat similar vein, the bank-insurance model in Germany has not yet realised its full potential, accounting for only 23% of total premiums generated in 2005. Current figures suggest a small increase of 2% in the market share of bancassurance in the life market. Nevertheless, pension reforms create a promising setting for banks and insurers and the phenomenon is expected to bear fruits in the years to come. Surprisingly, German bancassurers lead the market in Europe in terms of their penetration in non-life insurance, which currently stands at 12%.

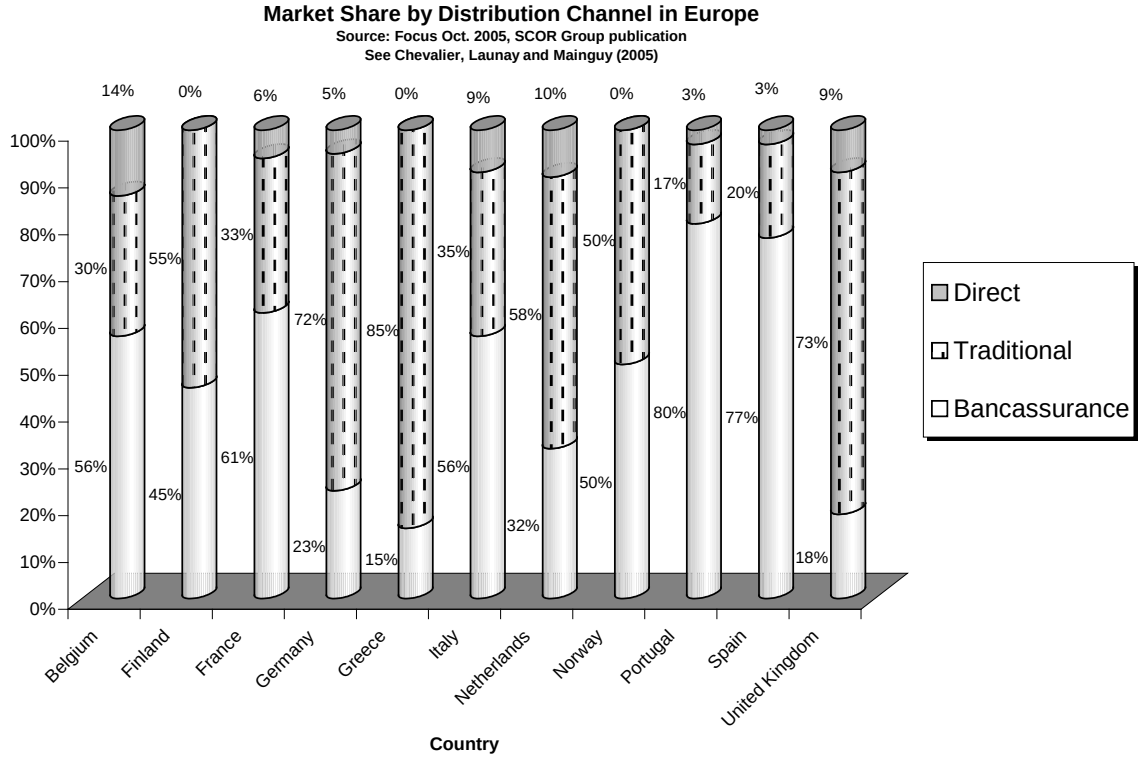
It is important to note here that the very nature of the U.K. and German markets may provide an additional explanation for the erratic success of bancassurance in these markets, when compared to other European countries. Both their economies are predominantly centred upon their equity markets, whereas the majority of the economies of other European countries – where bancassurance has been successful – are predominantly based on their respective banking systems.

In Greece, even though bancassurance enjoys a mere 15% market share, there are great opportunities for bancassurers there, since this limited share mostly stems from customer unawareness regarding the bank-insurance products offered there, rather than from their willingness to buy such products, which seems to be noteworthy[31]. Similar figures can also be found in Poland, where bancassurance enjoys a 15% share in life insurance. Despite its growth in the life insurance market, the respective penetration of bancassurance in the Polish non-life insurance market is still in its infancy, with market share below 1%. On the contrary, bancassurance has witnessed

[31] See Lymperopoulos, Chaniotakis and Soureli (2003). A more detailed analysis of their work is offered in chapter 3.

increasing success in Turkey, where it accounts for 23% of life and 10% of non-life insurance premiums, respectively. Finally, in Switzerland, a country that is not included in Figure 2.2, bancassurance has so far failed due to laws on banking secrecy that had a catastrophic impact on the joint venture and merger models that banks and insurers attempted to implement there.

Figure 2.2. Market share by distribution channel in Europe[32]



On the other side of the Atlantic Ocean, the Glass Steagall Act of 1933 has hampered the evolution of bancassurance in the U.S. Despite the long-awaited Financial Services Modernization Act (FSMA, 1999) that expanded the mix of permissible activities for players in the financial services field, bancassurance is still struggling to take off. The fact that there is huge growth potential in the U.S. that mysteriously remains unexploited has fuelled numerous debates in the literature on the subject. The typical conclusion seems to be that the long-lasting barriers that existed between banks and insurers have in a way managed to create an ill market,

[32] See Chevalier, Launay and Mainguy (2005).

where, even after the removal of those barriers, differences and misunderstandings between banks and insurers are acting as a brake in the expansion of the bank-insurance model. Another major reason for the low interest that U.S. banks show in insurance is the perceived low margins of insurance products versus banking products. As such, U.S. banks have traditionally preferred to invest in other banking-related businesses that offer higher rates of return. For example, the high profile exit of Citigroup from the insurance business through the divestiture and spin-off of Travelers, was mainly due to the latter's low rate of return and high risk. On the contrary, recent U.S. bank acquisitions show the banks' increasing interest in insurance distribution. This is mainly due to the fact that insurance brokerage provides higher returns and lower volatility than insurance underwriting.

Bancassurance is also experiencing huge difficulties in the Canadian market with the exception of Quebec. Canadian banks that are controlled by the Federal Authorities are only allowed to sell travel and loan protection insurance through their branches. Even though the majority of Canadian banks have life insurance subsidiaries, they are only allowed to sell their products through other distribution networks, which have no connection whatsoever with the bank branches.

Having analysed the status of bancassurance in the mature markets, we can now shift our focus to the emerging ones, which seem to offer substantial opportunities for the growth of the phenomenon. In Latin America, deregulation in the financial services sector in most countries has promoted the expansion of the model. The ability of banks to sell insurance products directly to their customers is now, in general, legally recognised with the exceptions of Argentina, Chile and Colombia, where some restrictions still apply.

Brazil for instance, represents a gigantic opportunity for bancassurers and the model in this market has started to flourish in recent years. The tremendous prospects in this market stem from three analogous dimensions, namely the demographic, economic and regulatory characteristics of the country. On the demographic front, Brazil is the sixth largest country in the world and has an enormous population of approximately 184 million inhabitants[33], almost 60% of which are under the age of 30. These demographic attributes generate a significant challenge for bancassurers because it is pragmatic that, it is the economically active layers of population that are

[33] However, as figures suggest, the declining birth rates and increased life expectancies will inevitably force the population to stabilise at around 200 million in the following 15 to 20 years.

most in need for financing (banking) and savings-protection (insurance) solutions. As a result, a successful blending and promotion of such products via the implementation of bancassurance is deemed to engender gigantic profit opportunities for banks and insurers. Additionally, in terms of its economic environment, Brazil is the leading market in Mercosur[34] and in fact in the entire region of Latin America and that makes it one of the most preferable countries for foreign investment. More noticeably, the country has surmounted an economic recession which was mostly evident within the 1980-1992 period and since then has been recovering its dynamics and economic growth at a promising pace. More specifically, as statistics suggest, between the years 1999 and 2003 Brazil's GDP and per capita income had an average growth rate of approximately 12.40% and 10.60% per annum respectively. Moreover, the realities and trends in Brazil's insurance industry further magnify the opportunities for the bancassurance model which, as mentioned above, already thrives there over other insurance distribution channels. The strong growth in all lines of insurance and particularly in personal life insurance lines, combined with the so far low per capita insurance penetration, provide strong foundations for the future development of the model. Besides the promising economic characteristics, a battery of regulatory relaxations such as the opening of the internal market to foreign players, and the privatisation of reinsurance and personal accident insurance[35] provide a fertile terrain for bancassurers.

According to figures, bancassurance is the prevailing method of distribution in Brazil, accounting for 86% of all individual life premiums[36] (*2004 figures*). Interestingly, the ten largest banks and/or insurance companies in Brazil have selected and use bancassurance as their main distribution outlet. Bradesco, the top Brazilian bank in terms of insurance premium generation, controls 34% of the life market through the bank-insurance model, and Itau, Unibanco AIG, Santander and Caixa

[34] Mercosur (Spanish) or Mercosul (Portuguese) is a trading zone between Brazil, Argentina, Uruguay, and Paraguay, founded in 1991. Its purpose is to promote free trade and the fluid movement of goods, peoples, and currency. Bolivia, Chile, Colombia, Ecuador and Peru have associate member status. On 9 December 2005, Venezuela was accepted as a new member, but it will be officialised in late 2006. After changes in Venezuelan policy to adhere to existing Mercosur rules, Venezuela will become a voting member. On 30 December 2005 it was announced that Bolivia would be invited to join as a full member.

[35] The latter generated a market of about US$ 5 billion.

[36] This figure includes premiums generated by VGBL (*Vida Gerador de Benefício Livre*), a retirement product dedicated to the accumulation of funds firstly introduced by Itau Bank. If this product is excluded, bancassurance accounted for 66% of life premiums in Brazil in 2004. The current figures stand at 55% for life insurance and 10% for non-life insurance.

Seguros – CNP, follow with 17%, 5.5%, 5.1% and 4.9% respectively. The annuities market is also massively dominated by bancassurance which accounts for 93% of all premiums generated, with Bradesco, Itau, Brasilprev and Unibanco controlling 38%, 17%, 11% and 8% respectively, via their bank-insurance operations.

On the other hand, the existing restrictions on the direct sale of insurance products to a bank's customer base in Argentina and Colombia have somewhat hampered the expansion of the model in these countries. Argentinean and Colombian regulations require insurance products to be sold through separate intermediaries rather than one insurer, something common in other countries.

In a somewhat similar vein but within a rather more relaxed environment, Chile restricts the direct sale of insurance products to a bank's customer base unless the insurance product accompanies a banking transaction. Moreover, banks are not allowed to own insurance companies, yet the bank-insurance combination can be achieved within a holding company structure. Despite the restrictions in Chile, estimates[37] show that bancassurance has still managed to control about 10% and 19% of the life insurance and non-life insurance premiums, respectively.

Last but not least, Mexico allows the combination of all financial services at the holding company level and participating companies are free to cross-sell their products to each other's clientele. However, it is mandatory for every insurance policy to involve an agent. The most considerable characteristic of the Mexican bancassurance market is the fact that banks are the principal private pension suppliers in the market, something that can be mainly attributed to the catalytic involvement of Mexican banks in the establishment of pension funds during the 1997 pension reform. Bancassurance in Mexico however, has yet to take off, as it currently enjoys a small penetration of 10% in both the life and non-life markets.

Clearly, Latin America represents a huge opportunity for bancassurance if we consider a number of diverse realities. The so far low insurance penetration rate in this region, the recent relaxations of the regulatory barriers in many countries, the potential for economic growth and the low average age of the region's population, are in favour of the successful expansion of the bank-insurance model there.

In Asia, bancassurance has mainly emerged as a diversification vehicle for banks and insurers after the financial crisis of 1997. Since then the model has been

[37] See Wong, Barnshaw and Bevere (2007).

successfully operating and expanding in several markets were regulation is favourable. The pioneering country was Singapore when DBS (*Development Bank of Singapore*) signed an exclusive distribution agreement with Aviva, immediately after the latter had purchased DBS's insurance operations. As of 2002 bancassurance in Singapore enjoyed a market share of 15% of all premiums and 24% of new business in the life insurance sector. As for the non-life lines, it is estimated that bancassurance in Singapore enjoys a satisfactory – at least for the time being – 5% to 10% market share[38].

The Japanese market on the other hand is still in its infancy, since it was not liberalised until 2001, when banks were allowed to own an insurance subsidiary and sell a limited range of insurance products to their customers directly. However, bancassurance in Japan has been witnessing rapid growth since the second and third phases of financial services deregulation that went into effect on October 2002 and December 2005 respectively. More analytically, the 2002 reform allowed banks to distribute annuities while the 2005 reform lifted restrictions on the distribution of other single premium products through bank branches. Banks and insurers have applauded deregulation by pursuing the formation of multiple ties, mainly in the form of non-exclusive distribution agreements. Yet, due diligence needs to be exercised in the formation of such multiple ties, as they could easily become unstable if they generate incentives for banks to promote the insurance products of companies that guarantee the highest commission. This possible conflict can not only traumatise the relationship between banks and insurers but can also lead to mis-selling scandals, if inappropriate or overpriced products are marketed via the bancassurance channel. In terms of figures, although the above mentioned reforms paved the way for the model, bancassurers still enjoy a minimal market share of less than 1% that is mostly due to the presence of significant remaining restrictions that exist so as to protect consumers and the insurance sector from weakening to the benefit of banks. Nonetheless, bancassurance in Japan has strong potential as the Japanese Financial Services Agency (FSA) and the respective Life Insurance Association are planning to progressively allow banks to distribute all insurance products through their branches by 2007.

[38] This is an estimate taken from Swiss Re, Sigma No. 7/2002. See Wong and Cheung (2002).

The phenomenon is also underdeveloped in Thailand where it controls 2% of the premiums respectively. On the other hand, bancassurance has really taken off in Malaysia, where it expanded its penetration in the life insurance market from 6% in 2002 to 45% in 2007. Moreover, in Korea, although banks have been allowed to sell insurance products since 2003, they are restricted from entering into exclusive distribution agreements with insurers. In fact, they are obliged to have such agreements with at least three insurers, with none of the latter being able to underwrite more than 50% of the bank's insurance business. In other Asian countries such as Indonesia and Philippines, bancassurance in average only generates about 5% of the life insurance premiums. Conversely, bancassurance in Australia has experienced rapid growth after the progressive lifting of the strict regulatory firewalls during the 1980s and 1990s. Within fifteen years the Australian insurance industry was transformed from one of the most regulated financial sectors to one of the least regulated industries. As such, deregulation promoted reorganisation in the insurance sector and paved the way for bancassurance which currently controls 43% of life insurance premiums.

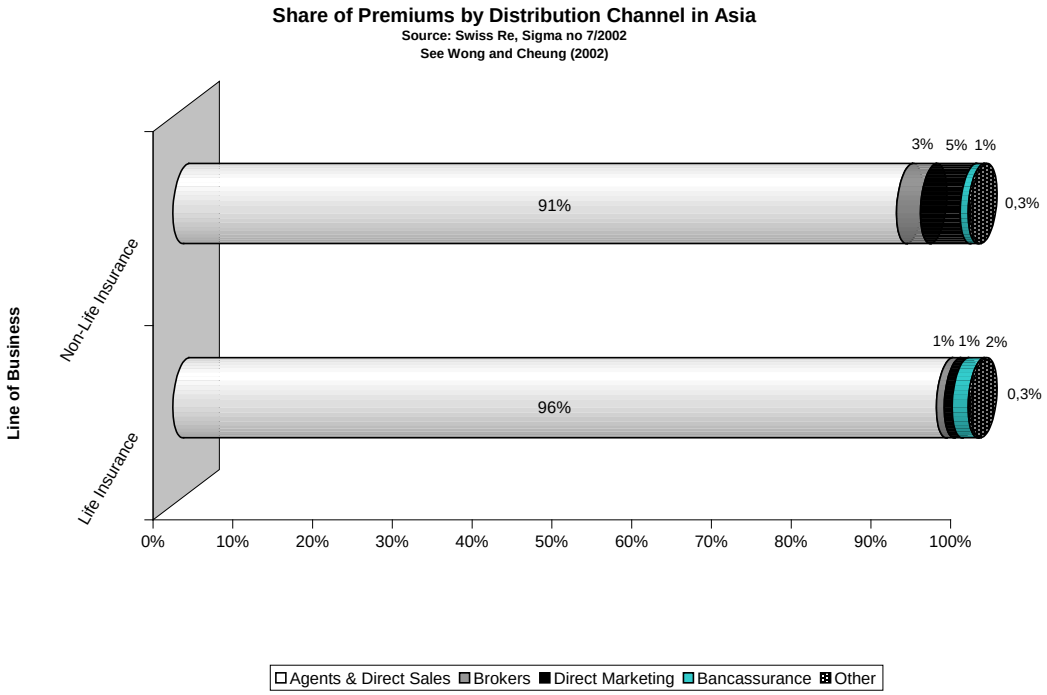
Finally, the bancassurance phenomenon is expected to thrive in the huge Chinese and Indian markets. Even though the model is still in its infancy in those two chaotically large markets, the fact that the local insurance markets are still unexploited with respect to their penetration levels yet, growing at burning rates, is very promising for the success of bancassurance. More specifically, the phenomenon in India has been rapidly expanding in the last years, with banks/insurance companies continuously shifting their focus to the alternative solutions that bancassurance offers[39]. Although bancassurance in India has an overall market share of less than 5% of life insurance premiums, the share of new business grew from 0% to 20% percent within the last two years. Moreover, the distribution of life insurance products via bank branches is expected to be further boosted by the pension reform which is under way in India. The latter can play a catalytic role in the victorious transformation of banks into private pension vehicles. On the other hand, bancassurance is still in its infancy regarding the distribution of non-life insurance products in India. However, although it controls a negligible market share, the latter is mounting at a very

[39] For example ICICI Prudential increased the percentage of policies sold through bancassurance from 15% in 2002 to 30% in 2004, SBI Life from 15% to 50%, Birla Sun Life from 25% to 40%, Aviva Life from 50% to 70% and HDFC Standard Life from 10% to 40%. Source: Tapen (2005).

promising rhythm, expanding the opportunity horizons of the phenomenon to unparalleled levels. Moving north-east, the bank-insurance model in China has not yet taken off. Although regulations there do not significantly constrain bancassurers, the model accounts for only 5% or less of life insurance premiums. Nevertheless, this figure may be somewhat misleading, given that statistics show that its penetration is noticeably higher in major cities (approx. 20%). On the non-life side however, the bancassurance model has a very insignificant market penetration of less than 1%.

Overall, regardless of the erratic success of the bank-insurance model in some markets, traditional networks still control the distribution of life and non-life insurance products in Asia. The following diagram shows the market share by distribution channel in Asia.

Figure 2.3. Market shares by distribution channel in Asia



3. REVIEW OF THE LITERATURE

During the last decades several forces have radically altered the ways in which financial institutions can operate. The opportunities for higher profits offered by technological innovations and the increasing popularity of capital markets have resulted in a structural evolution in the traditionally fragmented functions of financial services firms. After a series of lagged responses between regulation, circumvention and deregulation, the consolidation and the creation of very large, multi-product firms with global reach and power is currently the norm rather than the exception. The research on bancassurance falls under the wider canopy of restructuring in the financial services industry and the creation of financial conglomerates. As such, the current chapter aims to analyse the extant body of academic literature on financial conglomerates and consequently bancassurance. Section 1 focuses on the broader concept of financial conglomerates and reviews the literature on the causes and the benefits and costs associated with this phenomenon. Following the analysis of the general concept of convergence and of the debate associated with it, section 2 moves on to present the theoretical and empirical contributions on bancassurance. This facilitates a comparison between the proclaimed benefits and costs discussed in the theoretical contributions, and the empirically confirmed realities. Finally, a summary of the literature is presented in section 3, which at the same time sets the foundations for the research questions laid out in this study.

3.1. FINANCIAL CONGLOMERATES

In order to gain a perspective on the changing structure of financial institutions one has to address what the changes are, what are the forces driving them and what are the implications of such changes (Santomero, 1989). In what follows, the extant literature is thoroughly analysed in an attempt to shed light to the above questions.

As noted above, the financial services industry is undergoing a major shake-up during the last decades. Specifically, the long-established distinctions of the functions of financial firms are becoming increasingly opaque with the creation of universal banks and financial conglomerates. Financial conglomerates are institutions that may offer the entire range of financial services. In particular, they may perform traditional banking operations and at the same time underwrite securities and/or insurance, or act

as a broker for their clients' security transactions and/or insurance purchases. Universal banks on the other hand may also hold equity stakes in non-financial firms in addition to their financial company holdings (Benston, 1994; Vander Vennet, 2002).

3.1.1. THE DRIVING FORCES

A number of studies on financial conglomerates consider the market forces behind the creation of such structures. For example, Walter (2009) points out that market dynamics are responsible for the structural change in the global financial services industry. He argues that the main cause is the growing trend towards the reallocation of financial flows from financial intermediaries to the capital markets. Specifically, technological and financial innovations are considered to have facilitated the creation of both conventional and structured capital market instruments that provide investors (users of funds) similar or even superior functionality than traditional banking products. The increasing consumer demand for such products is inevitably driving the disintermediation process, where traditional intermediaries are experiencing major declines in their market shares of financial flows. Under this perspective, the move towards financial conglomeration can be seen as a structured response of financial intermediaries to external developments fostering changes in customer needs. Along the same lines, Allen and Santomero (2001) compare the role of intermediaries across the U.S., U.K., France, Germany and Japan in relation to the levels of the competition they receive from capital markets. They argue that banks located in countries where financial markets are highly developed[40] are losing ground to finance companies, securities markets and to mutual funds both on the asset (loans) and liability (deposits) side of their balance sheets. They find that this is particularly the case in the U.S. and U.K., whereas German, French and Japanese banks are still experiencing less competition of this sort due to the nature of their economies. The authors suggest that, as a result of the declining role of the traditional intermediation process, banks are moving away from traditional functions, while at the same time they are increasing their dependence on fee-based activities. The former argument provides further support to the notion that the creation of financial conglomerates is a natural reaction of banks to the growing competition from their external environment.

[40] Economies in countries where capital markets are highly developed are considered market-based, whereas economies that mostly rely on the traditional banking system are considered bank-based.

In addition to advances in technology and financial innovation, others also consider globalization and deregulation as factors contributing to the creation of financial conglomerates. Along these lines, Taylor (1999) parallels the structural changes in the financial services industry to a Darwinian shakeout and examines its causes and implications. He considers three major trends as the driving forces leading to the emergence of financial conglomerates. The forces discussed are deregulation and privatization, the introduction of new technologies and development of new products, and finally increased cross-industry and cross-border competition. Foreign competition is also analysed in Herring and Santomero (1990) who look into the structure of the U.S. financial system prior to the Gramm-Leach-Bliley Act of 1999 (FSMA), as well as the rationale behind and consequences of the creation of financial conglomerates. They point out that, apart from technology, another reason for the transformation of U.S. financial institutions is the increasing competition from foreign institutions. As suggested, regulatory competition by foreign markets has brought U.S. financial firms at a competitive disadvantage to a number of their non-U.S. counterparts that operate in less regulated financial industries. The determinants and driving forces of cross-border bank mergers is also part of the focus in a recent survey by Buch and DeLong (2009). They conclude that the lowering of implicit and explicit barriers to the integration of markets fostered cross border merger activity and, naturally, facilitated the evolution of financial conglomerates.

Another strand of literature considers technological advances as the main driving force behind the blurring of the functional distinctions among financial services, while financial innovation and deregulation are viewed as the mere consequences of the former. In a study of the firm-level and public policy effects of the changing structure of financial services, Santomero and Eckles (2000) consider technological advances as the main force driving the formation of financial conglomerates. They view the emergence of innovative products as the result of advances in technology and deregulation as an accommodation to the continuing practice of explicit or implicit circumvention of the rules by financial firms. In turn, they point out that regulatory evolution introduces fierce competition between financial firms and fuels the creation of new product delivery channels that are challenging the role of traditional banks. Furthermore, in a review of two volumes of conference articles on universal banks and financial change, Santomero (1989) concludes that the shift towards universal banking seems to be happening on a global scale, to the extent allowed by the

permissiveness of each national regulatory environment. In terms of the main forces behind this trend, he points to advances in technology and telecommunications, the emergence of new financial products, globalization of the marketplace and deregulation. He suggests that advances in the area of telecommunications have not only increased the range of products available to consumers, but also have made a number of products cost-effective for the first time, while financial innovation has brought about new products. With respect to globalization and deregulation, he argues that these are the outcome of the former forces.

To sum up, there seems to be a consensus with regards to the causes of the consolidation wave. In particular, technological advances have altered the financial services arena to the extent where traditional intermediaries need to adapt or let their market shares be severely affected by cross-industry and cross-border competition. Having analysed the causes, this section proceeds to review the literature on the implications of the conglomerate wave in an attempt to shed light on the second question of Santomero (1989).

3.1.2. Benefits vs. Concerns

The benefits and costs of a more integrated financial system have caused an ongoing debate in the academic literature. As a result, financial conglomerates and universal banks have attracted both fervent supporters and ardent detractors. Following Santomero and Eckles (2000), the benefits and costs of a more integrated financial system can be broken down into firm-level effects and public policy level effects.

3.1.2.1. Firm Level

Starting with the firm-level benefits and costs associated with financial conglomerates, the question of whether these institutions are in a position to benefit from increasing their size and scope has been at the centre of academic as well as strategic and regulatory discussions. These benefits and costs are typically related to increased cost and profit efficiencies (inefficiencies) due to scale and scope economies (diseconomies).

On one hand, the financial services industry is an information and distribution intensive industry with relatively high fixed costs and, as a result, increasing firm size

may lead to size-related reductions in operating costs due to better utilization of existing resources. The latter include physical and human resources such as the branch networks, electronic distribution systems, the infrastructure software and personnel (Santomero and Eckles, 2000). Given the above, the financial services industry is considered to exhibit high potential for economies of scale as long as the expansion fits to the business and/or a specific size threshold is not exceeded. This is because, while size can add value for some lines of business, it may be value destroying for others. In a similar vein, there is an upper limit to expansion which, if exceeded, can bring about diseconomies of scale attributable to administrative overheads, agency problems and other cost factors (Walter, 1997). Despite the size related advantages, the formation of financial conglomerates cannot be justified by the potential for economies of scale per se. This stems from the fact that economies of scale are more related to size increases, whereas the core function of financial conglomerates is the fusion of multiple products and services under the same corporate umbrella. As such, economies of scale in isolation can only justify size increases of existing financial conglomerates that can be achieved through organic growth or via mergers and acquisitions (Skipper Jr., 2000).

For this reason, the potential for scope economies can provide a more subtle justification for the creation of financial conglomerates. This is especially the case given the presence of high fixed costs and the complementarities across different products in the financial services industry. Economies of scope can be achieved both at the production and the consumption levels.

The first, usually referred to as cost scope economies, stem from cost efficiencies related to the joint production of an array of services. Specifically, cost economies of scope are achieved if financial conglomerates can produce a given mix of products at a lower cost than individual institutions producing the same array of products separately (Berger, Hunter and Timme, 1993). Cost scope economies could come from a number of sources. In particular, they may be the result of a) spreading the fixed expenses of managing client relationships, such as human resources, information technology and sustaining good reputation, over a broader output mix, b) the efficient use of established distribution channels for delivering additional products at lower marginal costs and c) synergies in the use of knowledge related to the production of services (Herring and Santomero, 1990). Despite the cost related benefits that can be attributable to scope economies, supply side diseconomies may

arise from a number of factors. Specifically, the sheer size and the respective bureaucracy in financial conglomerates may create inertia, making the institution unable to respond to changing customer needs, prone to "turf battles" and profit attribution conflicts, while finally, cultural differences in management and staff may disturb the flow in delivering a broad range of financial services (Skipper Jr., 2000; Walter, 1997).

The second, or consumption scope economies, are also known as revenue economies and can be achieved through the efficient cross-selling of an array of products from the same outlet. In particular, consumers might find it more advantageous to purchase multiple products from a single outlet (conglomerate), given the reduced overall cost, as compared to the cost of purchasing the same services from separate suppliers. These cost savings might arise due to supply side (production) scope economies, such as reduced service prices, transaction and contracting costs, or due to lower information, search and monitoring costs at the consumer level (Herring and Santomero, 1990; Vander Vennet, 2002; Walter, 1997). In this respect, financial conglomerates may benefit from demand side scope economies if consumers are willing to pay a premium for joint provision of services, up to the amount of savings they obtain from joint consumption. This in turn implies that financial conglomerates can increase their revenues directly, through higher fees or prices, or indirectly, through lower interest paid on deposits (Berger, Humphrey and Pulley, 1996).

From another perspective the above practice may bring about scope diseconomies caused by customer disappointment with regards to cost savings not being passed on to them. What is more, demand side diseconomies are also likely to arise given that, as Herring and Santomero (1990) suggest, the broader the array of financial products offered, the greater the possibility that conflicts of interest will arise. Such conflicts could be in the form of agency costs due to personnel acting against the interests of clients in product tie-ins (Saunders, 1994), or the mishandling of the interests of a group of clients vis-à-vis those of other client groups. Another possibility where diseconomies can arise is the case where client information that is transferred across the conglomerates' operations is against the formers' interests (Walter, 1997). This is highly possible to come about in the form of information abuses, where the ignorance of counterparties is exploited using information flows across different operations, to the benefit of the conglomerate firm.

While both production and consumption economies may offer considerable opportunities to financial conglomerates, demand-side economies of scope are easier to achieve. This is particularly the case in restricted markets such as the U.S. financial services industry, where the full potential from scope economies, particularly at the production level, was somewhat hinged by the regulatory product-mix restrictions that existed prior to the passage of FSMA in 1999. Therefore, there are greater opportunities for revenue expansion from demand-side economies via effective cross-selling, given that, in contrary to cost reduction opportunities, revenue economies can be achieved at a less than full organisational integration level (Saunders, 1994).

Another argument against the effects of scale economies on financial conglomerates is that the product of efficient management can sometimes be mistaken for scale economies, especially when firms compete well and become large (Berger, 1993). For example, large, multi-product firms may also be in a position to gain from improvements in X-efficiency, or in other words, superior management of available resources. For instance, managers of financial conglomerates might be able to manage labour, capital and existing technology in a more efficient manner, or be more effective in acquiring productive inputs and producing optimal outputs, than managers of single product firms (Walter, 1997). Moreover, the organisational design of financial conglomerates and their ability to quickly develop hybrid products, or to contain costs by reallocating inputs across different products, puts them in a better position with respect to adapting to changing technological or market conditions (Skipper Jr., 2000).

In addition to the above, corporate diversification is often cited as one of the most important advantages stemming from the creation of financial conglomerates. Theoretically, if the returns of banks and other firms are imperfectly correlated, the integrated or aggregate profits of a universal bank or conglomerate will exhibit lower variance than those of standalone/specialised institutions. This becomes more apparent if one considers the case discussed previously, where clients bypass banks and raise funds directly in the capital markets. Although this could be a devastating scenario for focused banks, financial conglomerates will be able to offset the decline in their lending activities by the respective increase in their securities activities (Barth, Brumbaugh Jr. and Wilcox, 2000), or via concentrating on other fee generating activities like insurance. In addition, the ability of such institutions to spread their income across geography is considered to be equally important in stabilising risk and

returns. The lower profit variance also leads to a number of indirect benefits. First, the risk of insolvency and the probability of incurring distress related costs are reduced and, as a result, financial conglomerates may benefit from better credit scores and lower financing costs. Second, the expected corporate tax can decline given the reduced volatility of earnings. Third, a less volatile income stream not only regularizes dividend payments, something which emits positive signals about the company, but also paves the way for long-term and sound financial planning (Gaughan, 2002). Considering the link between the above attributes and profits, financial conglomerates are expected to exhibit superior capacity in generating returns for shareholders (Santomero and Eckles, 2000). Finally, it is often argued that by allowing banks to integrate with other firms, the former will be able to boost their capital levels and in this way experience a direct improvement in their financial status (Saunders, 1994).

However, the concept of diversification in financial conglomerates has not been able to escape criticism over the years. First, corporate finance theory is against mergers where diversification is highlighted as the key motive. This is mainly due to the notion that companies that choose to diversify are offering a redundant service to their stockholders who could instead diversify their portfolios themselves at lower costs. Consistent with that notion, Levy and Sarnat (1970) employ portfolio theory to prove that in the absence of synergistic gains and capital cost economies[41], the diversification benefits that are stemming from such mergers cannot produce economic gains in a perfect capital market. In addition, examples from the manufacturing industries show that the conglomerates that where created on the grounds of diversification, subsequently destroyed shareholder value and were forced to refocus on their core businesses. The counter-argument for financial conglomerates however is that instead of relying on mere portfolio diversification benefits, they bring about related diversification, which leads to synergies at various levels of the value chain and more integration at the operational level (Van den Berghe and Verweire, 2001). This is in line with early theoretical evidence that suggests that related diversifiers outperform unrelated diversifiers (Rumelt, 1974), and sends a very positive signal for financial conglomerates given that there is a great degree of similarity in the operations of their subsidiaries.

[41] The term capital cost economies is used by the authors in order to describe cost savings that stem from better access to capital markets and reduced lender's risk following diversifying mergers.

3.1.2.2. PUBLIC POLICY LEVEL

Other than the firm-level benefits and costs discussed above, a great deal of focus has also been placed on the public policy level effects of financial conglomerates. These typically relate to concerns that financial conglomerates will bring about increases in systemic risk, assume increased access to the governments' safety net, create unhealthy concentration of power and lead to conflicts of interest between the firm and consumers. The fact that private profits, such as the firm level benefits analysed previously, are not aligned with social profits is one of the main reasons why the financial services industry has been heavily regulated, with authorities aiming to facilitate constant growth in the industry and consequently to the national economies without risking the stability of the respective financial system.

Focusing on the social costs of the creation of financial conglomerates, the mainstream of concerns has been principally related to the scale and reach of these institutions or, in other words, the possible consequences of their sheer size. It is often argued in the academic literature that these mega-firms might pose a threat to the stability of the financial system as a whole. This is specifically the case if the proclaimed diversification potential that is expected to reduce the risk of failure of these institutions is either overstated or non-existent[42].

Alternatively, even if diversification benefits are indeed present, Wagner (2008), presents a model where, although beneficial per se, diversification can reduce welfare given that it can promote excessive risk taking by banks. Irrespective of the above scenario, potential distress or failure of one of the component firms can extend to the holding company and its subsidiaries (Santomero and Eckles, 2000). In addition, the possibility of risk spillover is considered to be amplified by diversification in Wagner (2010), who argues that institutions are becoming increasingly similar through related diversification and, hence, systemic crises are becoming more likely. As such, the sheer size and scope of a distressed conglomerate, coupled with the growing linkages between firms and increased capital flows in the modern financial markets, can affect the entire sector and, this can spread to the economy as a whole. The notion of increased systemic risk arising from the broadened scope of banking activities has been recently gaining ground in other recent theoretical contributions that delve into

[42] See section 2 for a detailed review of the empirical findings on the risk effects of expanding the scope of financial institutions.

systemic risk and market crashes (Acharya, 2009; Ibragimov, Jaffee and Walden, 2010). In particular, the above articles offer two complementary models of systemic risk and generally find that although actions of diversification are optimal for individual intermediaries, they may be suboptimal for society. Complementing the theoretical approaches, recent empirical evidence on systemic risk is also available. Specifically, De Jonghe (2010) probes the relationship between bank tail betas (defined as the probability of a crash in a bank's stock conditional on a crash in the banking index) and measures of functional diversification, controlling for other factors. His overall findings complement the conclusions of theoretical approaches in that they imply that the creation of financial conglomerates and universal banks does not improve the stability of the banking system. Notwithstanding the above studies, (De Bandt, Hartmann and Peydro, 2009) offer a comprehensive analysis of the concept of systemic risk along with a systematic review the existing body of theoretical and empirical literature.

On the other hand, even if diversification indeed leads to lower risk of failure, it is feared that the sheer size of these institutions will inevitably increase the severity of the effects of a likely failure on the financial system (Skipper Jr., 2000). Given the possible ramifications of a large conglomerate's failure on the financial system and the economy, these institutions are often characterised as "too big to fail" and thus gain access to the government's safety net. This forms the basis of a set of two interlinked concerns.

The first is whether government guarantees will be extended to a broader range of financial activities to cover the whole spectrum of the conglomerates' functions. If this is the case, not only conglomerates will exhibit an unfair advantage over their specialised or non-bank competitors (Barth, Brumbaugh Jr. and Wilcox, 2000), but also further convergence will be stimulated, which can ultimately lead to a more concentrated financial system. Some fear that such a landscape will inevitably pose undesirable systemic problems, given that a failure will bring about government bailouts and excessive taxpayer bills (Santomero and Eckles, 2000; Walter, 1997). Similar conclusions are drawn in Kwan (2004) who calls for attention in the ever growing scale and concentration of financial institutions because of systemic risk concerns. He points out that "too big to fail" institutions may gradually become a burden to the tax-payers.

The second is government induced moral hazard. As noted in Kane (2000), the increased size and market share of financial institutions enhance their market power and political clout[43], thus intensifying conflicts between regulators and making it harder for them to monitor and limit the institutions' risk exposures[44]. The difficulty to monitor these mega-firms, coupled with their access to the government's discount window, can introduce serious moral hazard issues, where managers take on excessive risk. In turn, regulators dealing with this issue, would face the dilemma of implementing tight regulation, preventing efficiency, versus the possibility of a large bailout (Benston, 1994). The recent financial crisis of 2007-2009 clearly demonstrated both the moral hazard-induced excessive risk taking by these companies and the subsequent devastating social costs from governments' efforts to contain a systemic collapse through massive bailouts of large financial institutions.

The above facilitated the re-surfacing of the old argument around the '*narrow banking*' concept, adeptly analysed in Bossone (2001). As discussed in Boot and Thakor (2009) and Morrison (2009), supporters of this concept argue that firewalls, such as those imposed by the Glass-Steagall Act, should be reintroduced in order to limit the risks that deposits are exposed to and, hence, reduce systemic risk. Along these lines, Vesala (2009) considers the advantages and disadvantages of narrowing the size and scope of banking institutions. He argues that narrow banking would cause significant losses in terms of bank synergies, without guaranteeing the elimination of systemic risk. In fact, he stresses that an artificial restriction of bank margins may increase bank manegement incentives to gamble so as to to maintain profitability. Under such scenario, narrow banking may have to be supported by ultra strict supervision, a solution that is not optimal.

Furthermore, the possibility that convergence in the financial services industry will lead to an unhealthy concentration of power is another issue that concerns regulators and academics alike. The issue of concentration of power can be seen from two different angles. First, large financial institutions may be able to benefit from increased monopoly power. Specifically, some worry that sheer size or, controlling a full range of financial product substitutes, may permit conglomerates to extract

[43] Herring and Santomero (1990) disagree on the issue of excessive political influence exercised by financial conglomerates and suggest that small institutions can exhibit and exercise similar powers, as in the case of extreme lobbying by the thrift industry in recent years.

[44] Kane (1999) refers to these institutions not only as "too big to fail" but also as "too big to discipline adequately".

economic rents – and redistribute them to shareholders – by raising prices above marginal costs (Herring and Santomero, 1990; Walter, 1997). In line with this view, Walter (2009) draws attention to the fact that the financial services sectors of many countries exhibit oligopolistic trends, with excessive market power allowing these firms to benefit from monopoly by charging more, or monopsony by paying less. Nevertheless, he argues that monopoly power is difficult to be sustained in markets where barriers to entry are low and thus new entrants can destroy oligopolistic structures through effective competition. Others fear that conglomerates may be able to affect the flow of capital by allocating funds (making credit available) only in particular segments of the economy, or limiting credit to small businesses (Santomero and Eckles, 2000).

Finally, there is growing concern that conglomerates will be subject to severe conflicts of interest as discussed earlier. The six most cited conflicts of interest in the literature can be identified as the salesman's stake, stuffing fiduciary accounts, bankruptcy risk transference, third-party loans, product tie-ins and information transfer (Saunders and Cornett, 2008). First, proponents of the presence of conflicts of interest argue that when a bundle of products is promoted by the same institution, managers no longer offer appropriate advice to customers with regards to which products to buy. Instead, it is believed that they are subject to a salespersons' stake in pushing the affiliates' or subsidiaries' products, to the detriment of the consumers' interests. Second, another potential conflict reported in the literature arises when firms that act as underwriters are unable to place the securities in a public offering. As such, in an effort to avoid being exposed to unwanted underwriting risk, the conglomerate might seek to minimize the risk of underwriting losses by "stuffing" unwanted securities in accounts managed by its own investment subsidiary and over which the conglomerate has discretionary investment powers (Saunders and Cornett, 2008; Walter, 1997). Third, conglomerates might misuse private information obtained through their lending activities in order to transfer bankruptcy risk to the unsuspecting public. Under such a scenario, a bank subsidiary that holds private information on the inability of one of its debtors to pay-off loans made by it, might be induced to use its securities affiliate to underwrite securities that will be then offloaded to the public and subsequently use the proceeds to pay down the bank loan (Puri, 1996; 1999). Fourth, critics of financial conglomerates also argue that a bank subsidiary may direct below market loans to outside investors, conditioned upon their purchasing securities

underwritten by the conglomerate's securities arm, in order to extend the latter's revenues (Walter, 1997). In a similar vein, a conglomerate can use its market power in one sector to promote the products of its affiliates. Such tie-ins, which represent the fifth concern, might come onto the surface if, for example, a bank subsidiary with a strong market presence, only offers bundled services to customers in order to support one of its affiliates. Specifically, the decision of issuing a loan to a customer may be solely based on the customer buying a supplementary product such as securities or insurance (Herring and Santomero, 1990; Saunders and Cornett, 2008; Walter, 1997). Nevertheless, tie-in sales need not be necessarily detrimental to the consumer. In this respect, Benston (1994) offers two explanations for this. First, he argues that even in markets dominated by conglomerates, competition among these should drive prices at competitive levels, just as someone would expect from a market dominated by specialised institutions that compete in a healthy fashion. Second, he contends that consumers cannot be worse off when presented with the opportunity to purchase bundled services. This is because, a) the additional transaction costs incurred when "shopping around" should drive the price of purchasing separate products up and b) ignorant consumers could be overcharged in a bundled service just as much as in an individual service purchase. Finally, the sixth conflict of interest is related to the possible transfer of private information from one affiliate to another, that gives an unfair advantage and unique price setting power to the latter company (Saunders and Cornett, 2008; Walter, 1997).

Having looked at the literature on the implications of the creation of financial conglomerates from both the firm and public policy perspective, the following can be summarised. From the firm-level perspective, it is evident that the benefits associated with expanding the scale and scope of companies in the financial services industry, outweigh the respective costs. On the other hand, there are serious public policy concerns regarding financial conglomerates and universal banks. From the sceptics' point of view, the emergence of universal banks and financial conglomerates seems to be creating an economic environment that socialises risks while privatising gains. Nevertheless, the consensus in the literature seems to be that the competitive forces created by open markets and prudent monitoring, should minimize the risks that the financial system and the economy are being exposed to. For example, similar conclusions are reached in Benston (1994), who considers all the concerns related to universal banking and points out that universal banks can offer considerable benefits

and pose a few problems for the economy. The future for universal banks and financial conglomerates is well depicted in the work of Santomero and Eckles (2000). They conclude that the synergies achieved via the universal firm system should drive the market towards the creation of an increasing number of such companies. They also suggest that that niche firms will not cease to exist and that is more likely that a mix of specialised and universal firms will be the norm.

3.2. The Case of Bank-Insurance

The bank-insurance phenomenon, or otherwise known as bancassurance, naturally falls under the wider canopy of mergers and acquisitions in the financial services industry and represents a central part of the wave towards the creation of financial conglomerates. The same market dynamics that fostered the expansion of financial conglomerates are also somewhat responsible for the emergence of the bancassurance model and its adoption by many financial services firms. Specifically, on the one hand, increased competition and its negative effect on interest rate margins, the threat of takeovers and the shareholders' pressure for higher returns have forced banks to look for and secure alternative sources of income (Staikouras, 2006). In a similar fashion, these competitive forces have pushed down insurance profitability ratios through their effect on both distribution costs and product pricing (Artikis, Mutenga and Staikouras, 2008). In addition, changing customer behaviour, such as the increased preference for a one-stop-shopping environment, and growing customer sophistication, have added to the need for cooperation between financial service providers (Ryan, 2001; Voutilainen, 2005), while the continuing relaxation of international trade barriers, and the trend towards deregulation in several markets has allowed companies to enter an increasing number of new markets (Benoist, 2002). Finally, technological advances have helped financial institutions to reduce costs and created motives for the creation of one-stop-shops, while analogous effects have been created by changes in demographics, such as the aging world population (Ryan, 2001). Given these changes in the financial companies' external environment, it was crucial for financial institutions to reduce costs, search for alternative sources of revenues and strengthen their capital basis, in order to become more efficient and compete effectively within this highly competitive environment.

Given that bancassurance is part of the conglomerate movement, the primary motives behind its adoption embrace expectations for synergies, similar to those analysed in the previous section with respect to financial conglomerates. Specifically, the key targets are higher efficiency and profitability, geographic and revenue diversification and finally, shareholder value maximisation that is considered as the primary motive by (Berger, Demsetz and Strahan, 1999).

The effects of the blurring boundaries between banking and insurance on firm value have spawned an ongoing debate in the academic literature, with a large volume of research focusing on the analysis of the potential synergies as well as the risks involved. In an effort to gauge the impact of bancassurance on firm value, the economy and the consumer, the majority of these studies adhere to three different methodological approaches. The first group of studies includes qualitative analyses that, unlike the majority of research, focus on the unquantifiable, yet still very important aspects of bancassurance. These studies, which are generally overlooked, are of great importance as they provide the theoretical framework, on the basis of which, quantitative studies are designed and developed[45]. The second set of studies compares the pre-merger and post-merger performance of financial institutions using accounting data. Specifically, these studies examine changes in accounting profit rates, cost/revenue ratios and also changes in risk-return profiles and the associated probability of bankruptcy of the involved institutions. As such, performance related studies produce a direct measure of whether bancassurance indeed adds to, or destroys the value of the financial institutions that embrace it[46]. The last group of studies uses the event study methodology to examine the stock market reaction to bank-insurance mergers. Based on the efficient market hypothesis, this methodology asserts that investors react to new information by immediately reflecting their expectations on the stock prices of the merging entities. In the case of the bank-insurance interface, event studies usually gauge the wealth effects of specific merger announcements – like the Citicorp-Travelers merger – and/or the market reaction upon certain regulatory announcements on the stock prices of banks and insurers, or provide direct evidence

[45] See Table B.5 in the appendix for a summary table of theoretical studies.
[46] See Table B.3 and Table B.4 in appendix for a summary table of studies that use accounting measures.

on the average equity wealth effects of a number of bancassurance deals on bidders, target firms and/or the combined entity[47].

In what follows, the arguments and conclusions of the qualitative studies are laid-out and discussed in section 1, while section 2 sets out to thoroughly review the empirical findings from performance and event studies alike.

3.2.1. QUALITATIVE STUDIES

Qualitative studies embark to explore the unquantifiable aspects of the bancassurance interface, which despite being very important, are generally overlooked in the literature. While some of these studies document the roots of the collaboration between banks and insurers and its expansion at several parts of the world, others look at the rationale behind its implementation. Another strand of studies focuses on the corporate side of bancassurance and examines the forms of entry and the available organisational structures. The challenges for managers and the risk-success factors that are pertinent to the bank-insurance interface are also examined in recent work. Notwithstanding the above studies, the pertinent benefits/risks and challenges for the consumers and regulators have also been the subjects of extensive scrutiny in studies on universal banks and financial conglomerates presented earlier. In what follows, this section builds the knowledge on bancassurance based on these qualitative studies and considers the various theories and conclusions drawn from this set of studies.

The cooperation between banks and insurers is generally believed to have emerged around the ‘80s in France. Nevertheless, there is evidence suggesting that the first links between banks and insurance companies emerged during the first decade of the 19th century at the U.S. state of Massachusetts (Johnston, 1922). Specifically, after the Armstrong investigation, the local legislature body made provisions for what was then called “savings-bank life insurance”. Through these provisions, but under specific requirements, savings banks in Massachusetts were able to establish insurance departments that used banks as the main channel for the distribution of personal and commercial insurance. Under this system, bancassurance was successfully operating under a well supervised system where insurance and savings divisions of banks were

[47] See Table B.1 and Table B.2 in the appendix for a summary table of studies that used the event study approach.

kept financially separate[48]. Around the same time, attempts were made to operate the model in a more integrated manner, through hybrid savings-insurance products, yet these plans failed due to regulatory concerns for the increased risks and fears that bank competition would wipe out the incumbent agency system.

In spite of the early attempts by financial institutions to put bank and insurance operations under the same corporate umbrella, regulatory intervention in the form of restrictions has slowed down the phenomenon, especially in the U.S. Nevertheless, determined bankers and insurers have consistently found ways to circumvent restrictions imposed on their affiliation. It is well documented in the academic literature that as a market becomes increasingly competitive, regulation tends to become stricter and regulated parties are more willing to innovate by finding loopholes, especially because regulatory restrictions impose opportunity costs on banks when narrowing the scope of their operations (Kane, 1981). In terms of the bank-insurance interface, the argument above is given further support in Broome and Markham (2000) who suggest that "the entry of banks and bank holding companies into insurance since the early 1990's is an example of creative lawyering and the acquiescence of regulators frustrated with the inability of Congress to statutorily expand the permissible activities of banking organisations". The fact that banks and insurers are still collaborating despite continuous attempts to separate them, proves that the market forces that pull banks and insurers together are carrying more weight than the legal barriers designed to keep the two industries apart (Felgran, 1985).

The cyclical interaction between regulation and market driven innovation is extremely apparent if one considers the case of the United States, where stringent regulatory obstacles have prevented the expansion of bancassurance. Nevertheless, innovation in terms of finding loopholes coupled with mega-mergers (i.e. Citicorp-Travelers) have pushed regulatory reforms (FSMA 1999), that paved the way for the creation of financial conglomerates and the expansion of bancassurance.

In Europe, the success of bancassurance is clearly evident if one considers its successful implementation and market penetration in major countries as well as its rapid growth in other European countries, where it is still in its infancy. The cases of the U.K. and France are adeptly analysed in Morgan, Sturdy, Daniel and Knights (1994). In the U.K., where banks promote bancassurance through fully owned

[48] In particular, the assets of the savings bank and its insurance department were kept separate so that neither department would be liable for the obligations of the other.

insurance subsidiaries or act as a tied agent or independent broker in selling insurance products, evidence suggests that independent advice is losing market share to bancassurance at an incredible pace. Even more spectacular figures are observed by the authors in France, where bancassurance is operated by banks in a more straightforward manner, through de-novo entry in the insurance market, or acquisitions of existing insurance firms. Nevertheless these figures are constrained to the life insurance and pensions market as penetration in non-life insurance is still low. In contrast with the previous study, others claim that bancassurance in the U.K. is still in its infancy due to the extensive market penetration of independent insurance advisors there (Benoist, 2002). The latter also argues that, in addition to the U.K., the phenomenon has not taken-off in Germany and Italy. Others suggest that despite the fact that the U.K. bancassurance model did not experience a boom in 1990s, as it did in other European countries, it is experiencing gradual growth due to an extensive restructuring of the market (Falautano and Marsiglia, 2003).

The status and practises of bancassurance in Greece has also attracted academic interest. What is interesting about Greece, which is considered a rather new market for bancassurance, is the fact that despite de jure regulatory limits on the interface of financial institutions, bancassurance existed there since the early 1980s in a de facto mode, where state owned banks operated their own insurance subsidiaries (Kalotychou and Staikouras, 2007)[49]. The potential for the growth of bancassurance in Greece is also evidenced in Lymperopoulos, Chaniotakis and Soureli (2003), who examine the extent of the opportunities of Greek banks to effectively cross-sell insurance products via their branches. The analysis of a questionnaire that was completed by 720 bank customers shows that there are significant opportunities that mostly arise from consumer unawareness of the offering of insurance products by banks, and their willingness to buy bancassurance products.

Outside North America and Europe, bancassurance has met uneven success, depending on characteristics such as the degree of regulatory intervention, the structure of tax and pension systems, the type of the financial system or economy[50], and finally the development of the insurance markets (Benoist, 2002). In this respect, the author finds that bancassurance is highly developed in Argentina and Brazil, due

[49] The authors also point out that the subsidiary structure is still the dominant bancassurance model in Greece.

[50] This serves to distinguish bank-based economies, where bancassurance has been successful, from market based economies where bancassurance has yet to take-off.

to the increasing penetration of foreign players in the first case and the important role of banks in the financial system of the second. On the other hand, the phenomenon is growing in Mexico and Japan, due to pension reforms and the abolition of regulatory barriers, respectively.

Another strand of qualitative research examines the market forces that pull banks and insurers together, the mutual benefits and costs along with the opportunities offered to, and the challenges faced by banks, insurers as well as regulators and consumers alike.

There are several potential benefits for both banks and insurers that can be exploited via the joint distribution of their services. Banks for instance, specialise in the provision of financial transactions to their customers (Bergendahl, 1995). They have extensive branch networks that serve millions of customers on a daily basis, and vast customer bases with exclusive information about lenders and borrowers (Felgran, 1985). In contrast to the insurers, banks experience strong brand recognition and customer loyalty for two main reasons. First, because they are perceived by the public as safe institutions due to their strong capital bases and second, because there is a general consensus among consumers that banks 'give them money' while insurers 'take it away'. Taking also into consideration the fact that banks are an effective 'sales machine' that serves millions of customers, it is generally believed that they could effectively sell insurance products as well.

Banks make inroads into the insurance market for a number of reasons. In particular, they can increase their non-interest income by offering insurance products and thus reduce their dependence on loans as a primary source of income (Broome and Markham, 2000; Johnston and Madura, 2000). This represents a great opportunity for banking organisations, since demand for ordinary banking products may experience limited growth or even decline from time to time. Under these circumstances banks can leverage their resources in selling insurance products in order to rebalance their revenue streams and avoid profit downturns. In other words, banks enjoy diversification benefits when they choose to offer insurance products via their distribution channel. Moreover, by leveraging their core competencies, such as their reputation and their vast distribution systems, banks can easily cross-sell insurance products along with traditional banking products (Flur, Huston and Lowie, 1997). This is possible because many bank and insurance services are complementary and can be packaged and cross-sold easily by non-specialised bank staff. For example,

insurance products could be offered to customers who purchase banking services and vice versa, as is the case when a mortgage is packaged with a life insurance policy. Furthermore, many customers may value a bundled provision of services from a single outlet more than unbundled offers of separate institutions, given the reduced information and transaction costs (Van den Berghe, Verweire and Carchon, 1999; Vander Vennet, 2002). As such, banks could offer a one-stop-shopping environment to their clientele in order to increase their market share and further build on customer loyalty. Finally, banks can boost their efficiency and profitability levels if they manage to achieve optimum usage of their resources and networks. The latter is in line with the conclusions drawn in (Bergendahl, 1995). By analysing the dynamics behind the profitability of bancassurance he identifies five key factors that are crucial for its success; the number of branches, the number of insurance specialists per branch, the number of customers, the cross-selling ratio and the degree of learning of the branch staff.

On the other hand, insurers specialise in areas where banks fall short. Most insurance companies have strong underwriting and investment/risk management experience, and specialise in product development and hard selling. Contrary to banks, they do not have extensive branch networks and therefore rely on costly distribution channels such as brokers and agents in order to market and distribute their products (Flur, Huston and Lowie, 1997). Insurance companies are risky in nature and that represents a major disadvantage with respect to brand awareness, since in general, the public perceives them as unsafe institutions. Insurers may benefit from bancassurance since they can market their products to a new and vast customer base. In addition, they can minimise their reliance on traditional networks by using the vast channels owned by banks, where the distribution costs are significantly lower than through broker/agent networks (Benoist, 2002). Therefore, insurance companies can boost their sales and at the same time lower their distribution costs, and that has a direct positive impact on profit efficiency. Moreover, a momentous advantage for insurers that choose the bancassurance model is the ability to make use of incumbent banking networks in order to quickly establish market presence even in completely new markets. Companies that choose the bank channel are also better positioned than their rival companies that use traditional distribution networks, since they are able to offer their products at lower prices; as such, profits could be further increased due to higher demand, or, through increased customer satisfaction and loyalty. Last but not

least, insurance companies can obtain vital capital injections that will help improve their solvency levels and expand their business.

Arguments against a bundled provision of banking and insurance services exist nonetheless. Some fear that very close ties between banks and insurers without integration at the operational level can create several problems, leading to expensive breaks of the relationships. For example, the cultural gap and the organisational differences[51] between banks and insurance companies can very often lead to severe problems that can become the basis for a subsequent failure of the relations within the bancassurance model (Morgan, Sturdy, Daniel and Knights, 1994). Specifically, clashes may arise in relation to the determination of commissions, handling of databases and client "ownership", management of information resources, and managerial roles (Benoist, 2002). Another typical danger outlined in the literature relates to the risk of product cannibalisation, where conventional banking products like deposits are substituted by insurance policies (Bergendahl, 1995). Furthermore, a main concern for banks when they act as distribution channels, is their exposure to reputation risk, since if an insurance contract sold by a bank runs into problems it is the bank that will face bad publicity. However, this risk can be easily diminished if bank managers exercise due diligence in choosing the appropriate partners for the bancassurance operation. On the other hand, insurance companies may face serious channel conflicts if they distribute one or more of their products through different distribution channels. There have been many cases in the past where brokers or agents have boycotted the bank channel resulting in the banks selling only simplified products. Finally, there are issues beyond those that arise from within the model. Van den Berghe and Verweire (2001) assess the one-stop-shopping principle and argue that while it may suit the needs of some customers, others may prefer to shop around.

Notwithstanding the sources of synergies that can be achieved at the distribution level through bancassurance, there are significant gains that can be realised if banking and insurance further integrate at the operational level. This is the reason why a growing number of qualitative studies has delved into the different levels of organisational structures offered to bancassurance, and/or analysed the benefits and

[51] According to Staikouras (2006), the cultural differences between banks and insurers stem from the fact that the two industries have distinctively different philosophies both at the corporate and retail level. He further argues that while insurance is associated with marketing innovation, hard selling techniques and compensation based on incentive systems, commercial banking is associated with building client relationships, risk control and compensation schemes that are less performance based.

costs of such integration from the perspectives of all participants. At this point, it is worth mentioning, that a large part of this literature has examined this from the perspective of financial conglomerates and universal banks. Nevertheless, when bank-insurance crosses the bounds of mere distributional agreements, it enters the realm of financial conglomerates. Given that the broad literature on financial conglomerates and universal banks was analysed in the previous sections and considering that the arguments offered and conclusions drawn in that literature are also pertinent to bancassurance, the following part focuses on the qualitative research with particular focus on the bank-insurance interface.

An extensive analysis of the convergence between banks and insurance firms ranging from the simplest distributional level to full integration is provided in Van den Berghe and Verweire (2001) and Van den Berghe, Verweire and Carchon (1999). They look at the potential benefits and costs of convergence from three different perspectives; the consumer, market and macro perspective. They suggest that the combination of banking and insurance via bancassurance is just the initial step towards a more integrated relationship, one that will redefine the core business of financial institutions from a product (technical) to a client-oriented (functional) approach. Similar conclusions can be found in Merton (1990), who proposes that the integrated/functional approach will provide a better organising perspective to banks that operate in an environment of rapid technological change and increasing interdependencies across global financial markets. Another strand of literature examines the available structures and the challenges that lie ahead for the successful implementation of bancassurance. For example, Voutilainen (2005) explores the various forms of bank-insurance alliances and proposes six different structure models. He concludes that the most successful models will be those that maximise cost and revenue synergies, customer relations management (CRM) efficiency, efficiency of sales management, product development efficiency and the effectiveness of one-stop-shopping, eliminate conflicting earnings logics between partners and channel conflicts, optimise capital and, finally, increase investor power. Along the same lines, Benoist (2002) argues that bancassurance presents a major opportunity for financial institutions if the inherent risks are taken into careful consideration and minimized. He concludes that successful bancassurers will be those able to tailor the model to the context, and those who focus on product quality and innovation, technology, low costs and strong customer relationships. Kist (2001) develops a model for success of

integrated financial services companies (IFS) that revolves around customers. He suggests that product range, distribution and scale are essential elements for the success of hybrid firms, while strong asset-liability management, competent risk management, brand creation and efficient technology are elements that can result in a comparative advantage if achieved. He also argues that through the integration of insurance, banking and asset management, financial institutions can benefit from higher and less volatile earnings, more efficient use of capital and diversification. With respect to the bank-insurance interface, it is argued that the latter can help banks and insurers in hedging their naturally mismatched positions in their assets and liabilities[52]. In a similar vein, the analysis of the asset management models of banks and insurance companies by Szego (1986), reveals a high degree of complementarities. More specifically, the similarities in the structure of their cash flows create opportunities for interest rate swapping between them, while the rising demand for insurance by banks to cover for increased non-diversifiable risks and for risky sovereign loans is further strengthening the ties between the two sectors. He concludes that the growing interdependence between banks and insurance companies will manifest in the form of increasing competition and/or collaboration within a four dimensional setting. Specifically, the first two dimensions of the bank-insurance competitive interface are already evident as banks sell special insurance packages and guarantees to their stockholders, depositors and third parties respectively, while insurers progressively promote virtual bank services. The other two dimensions represent the possible avenues for cooperation between banks and insurance companies. Elsewhere, the market realities along with the various impediments in the successful integration of banking and insurance, are adeptly analysed in Staikouras (2006), who then suggests a three-dimensional, radar-shape approach for the bancassurance model. Furthermore, in identifying the risk/success factors of the model he elaborates on various exogenous (market based) and idiosyncratic (strategic and operational) drivers that are crucial for the survival of hybrid institutions.

[52] These complementarities in banking and insurance are well represented in Crooks Gora (1997) who posits that "*In their traditional roles, both banks and insurance companies operate as intermediaries. As financial intermediaries, they obtain funds by issuing claims against themselves to market participants, and then investing those funds. Banks invest these funds in loans. Insurance companies invest them in securities, mortgage loans, and mortgage-backed securities. Both try to make money from the spread between their assets and liabilities. Both intermediate maturities (when their liabilities have one maturity and their assets another). Both reduce risk for their liability holders by diversifying their assets. Both reduce their liability holders' costs of gathering information about assets and contracting with asset holders*".

Specifically, economic growth, demographics, regulation and the tax environment are identified as exogenous risk-success factors. With respect to the firm specific dynamics, the business culture, corporate closeness, management initiative and adequate corporate governance are characterised as crucial strategic factors, whereas the branch environment, customer relations, range of services, financial and brand management are laid out as important operational factors.

3.2.2. PERFORMANCE STUDIES

The arguments of the qualitative research on the benefits and costs of financial conglomerates and bancassurance have motivated a growing amount of empirical literature that attempts to examine the issues typically raised in the former stream of research. The usual issues raised at the theoretical level are related to the potential synergies offered by convergence in the financial services industry, such as the potential for scale and scope economies (diseconomies), cost and profit efficiencies (inefficiencies) and risk reduction (risk increases). Along these lines, empirical research systematically tries to provide an empirical basis to these arguments and, as such, can be categorised accordingly. As such, performance related studies typically examine the phenomenon from two different angles; the first strand examines the effects of convergence on accounting profit rates and cost/revenue ratios (operating performance studies), while the other delves into changes in the risk-return profiles and the associated probability of bankruptcy of the institutions involved into cross-product diversification (risk-return studies). In what follows section 1 reviews the literature on operating performance studies while section 2 deals with risk-return studies[53].

3.2.2.1. OPERATING PERFORMANCE STUDIES

Most of the early research on the scope efficiency of financial institutions comes from research studies on scale efficiency that used almost identical cost functions to examine the extent of scope economies by comparing the costs of multi-product institutions to those of specialised firms. The overall results from those initial cost

[53] See Table B.3 in appendix for a summary of the efficiency, scale and scope economies studies and Table B.4 for a summary of the risk-return studies.

scope studies are almost identical to those of the early scale efficiency studies and generally find minimal cost savings for multi-output institutions[54].

For example, in one of the early studies Hunter, Timme and Yang (1990), examine the subadditivity of costs in 311 U.S. large banks in 1986, in the context of hypothetical mergers by employing a multi-product translog cost function using the Minflex-Laurent functional form. They find that the costs functions of large multiproduct banks are not subadditive, suggesting no cost complementarities in the case of multi-product manufacturing. In a similar vein, Chang and Lynge Jr (1994) examine the existence of multiproduct cost economies, and in particular, scale and scope economies in all U.S. savings banks (417) between 1986 and 1988. Using a generalised translog cost function they reveal constant overall and product specific returns to scale for the average savings bank. They also find that scope economies are present at the overall level, but results show diseconomies at the product specific level, complementing the above findings. On the contrary, results from studies outside the U.S. are more positive. Lang and Welzel (1996) measure economies of scale and scope, cost efficiency and the rate of technical progress for 757 German cooperative banks between 1989 and 1992. The employ a multi-product translog cost function similar to the previous studies and report moderate economies of scale for all size classes. They also find some evidence for economies of scope for small size classes. Interestingly, cost reductions are mostly due to technical progress in the institutions examined.

Later studies on scope economies have focused on revenue/profit scope efficiency effects of diversifying mergers. This type of approach provides a direct test on whether customers are willing to pay more for one-stop shopping of financial services, or instead prefer tailor-made products as provided by specialised institutions. For instance, Vander Vennet (2002) uses cost and profit efficiency measures in order to accurately compare specialised institutions with financial conglomerates and universal banks in Europe during the period 1995-1996. Cost efficiency is measured as a function of input prices, output quantities and risk, while both the standard translog and the Fourier-Flexible specification are used for the functional form. Profit efficiency is effectively measured in the same manner as cost efficiency, the only

[54] See Berger, Hanweck and Humphrey (1987), Chang and Lynge Jr (1994), Hunter, Timme and Yang (1990), Pulley and Humphrey (1993).

difference being that the log of profits[55] is used as the dependent variable. The analysis on a large sample of 2,375 European banks suggests that although specialised institutions exhibit equal cost efficiency with financial conglomerates when non-traditional activities are not taken into consideration, the latter are more cost efficient when all activities are accounted for. He also delves into the comparison of estimates of scale and scope economies for those three groups. Results suggest that while very small specialised banks exhibit large unexploited scale and scope economies, universal banks and financial conglomerates only have opportunities for increased scope economies which are linked to joint production and exhibit no scale economies. It is suggested that since conglomerates are more cost and revenue efficient than their specialised peers, further de-specialisation could lead to a more efficient banking system. These results seem to imply that there are significant gains that can be achieved through universal banking and bancassurance. Casu and Girardone (2004) examine cost and profit efficiency and changes in the productivity of 168 financial conglomerates in Italy between 1996 and 1999. They employ different methodological approaches and find mixed results across the parametric stochastic frontier approach and the non-parametric data envelopment analysis for cost efficiency, with the first suggesting a constant improvement over the sample period, and the second exhibiting irregular cost efficiency trend over the sample period. With regards to profit efficiency they report consistent estimates across methodologies and find that the former exhibits a persistent upward trend over the sample period. Finally, cross section regressions reveal that cost efficient conglomerates have higher capital ratios, superior growth rates and lower degree of problem loans. They also report a significant negative relationship between cost efficiency and ROA, a positive relation between the capital ratio, non performing loans and profit efficiency but a negative relation between growth rates and profit efficiency.

In the U.S., Wheelock and Wilson (2001) also use a number of different methodological approaches in order to analyse estimates of scale and product mix economies on a sample including all U.S. commercial banks with available data in the years 1985, 1989 and 1994. They find that banks could achieve potential economies by expanding the size of their output and adjusting their output mix toward the figures

[55] Each institution's profits are adjusted by adding the absolute value of the minimum value of profits in each sample and 1 $\{\ln(\pi + |\pi^{\min}| + 1\}$. This adjustment is necessary to avoid negative profit values.

of banks with at least $300–$500 million of assets. In terms of scale economies they find that the size threshold at which those are exhausted has increased between the mid-1980s and mid-1990s. Furthermore, Berger, Humphrey and Pulley (1996) analyse the synergies arising from the joint consumption of deposit and loan services using a measure of revenue scope economies. They assert that in order for revenue scope economies to exist in a competitive market, two realities must simultaneously hold. First, consumers must be willing to pay a premium for one-stop-shopping because otherwise banks would be forced to specialise and second, banks must be experiencing cost scope diseconomies since otherwise they would lack the basis for charging a higher premium for their joint services, while competition would wipe out any revenue synergies. Revenue scope economies are estimated as the difference between the percentage increase in bank revenues that is due to joint production and the percentage increase in revenues when each service is provided separately. Even after altering the standard indirect revenue function in order to incorporate market imperfection, the resulting function only accounts for single output banks. Provided that it is pragmatic to accept that such institutions do not exist, the function is extended so as to assimilate quasi-specialised banks. Moreover, given the problems of the standard translog cost function when estimating scope economies[56], they employ a composite model that associates a quadratic composition for multiple outputs with a log-quadratic composition for input prices. This model also allows disintegrating scope economies into their fixed and complementary components. The model is specified so as to account for two categories of financial services produced by banks (first includes payment, liquidity and safekeeping services while the second includes intermediation and loan services) and three distinct measures of revenues (total gross revenue, net revenue, adjusted net revenue[57]). Three input measures are used (physical capital, labour and funds). The estimation of the revenue functions and scope economies is done by using the three revenue measures as dependent variables within a nonlinear least squares routine. The estimation years are 1978 and 1984, each with a sample of 683 banks, and 1990 with an overlapping group of 626 banks.

[56] According to Berger, Humphrey and Pulley (1996) the translog cost function is unable to accurately model the effects of specialisation in that its cost economies estimates as well as its Box-Cox variants vary depending on how close the point of scope economy evaluation is to completely specialised production.

[57] Adjusted Net Revenue = Net Revenue - Core Deposit Interest Expenses.

Their results suggest that there are no revenue economies of scope in banking, given that both their fixed and complementary components appear to be insignificantly different from zero over 1978-1990, irrespective of the revenue measure employed. Berger, Humphrey and Pulley (1996) offer three possible explanations. First, they suggest that consumers may value one-stop-shopping but competition may be preventing banks from charging higher premiums. Alternatively, although competition may not act as a brake for higher bank premiums, consumers may not be willing to pay that premium for multiple services. In the worst case scenario, they suggest that competition may prevent banks and at the same time consumers may not value a one-stop-shopping environment. Interestingly, their results point out that synergies between loans and deposits are mostly stemming from joint production rather than joint consumption. Therefore, by extrapolation, the same conclusions may hold for combinations of banking and non-banking products, such as bancassurance services.

Looking at the surveys in this area, it is suggested that consolidation can increase profit efficiency both in the U.S. (Berger, Demsetz and Strahan, 1999) and Europe (Berger, DeYoung and Udell, 2001), if consolidation barriers are removed. Finally, in a more recent survey of the academic literature on M&As, DeYoung, Evanoff and Molyneux (2009) conclude that early studies failed to provide solid results with respect to efficiency improvements because of difficulties in defining the cost and profit functions. When post-2000 studies are considered, they conclude that North American bank mergers are likely to result into efficiency improvement, whereas European mergers do bring about efficiency gains.

3.2.2.2. Risk-Return Studies

Another important issue discussed in the theoretical studies on financial conglomerates and bancassurance is whether financial conglomerates are better positioned than specialized institutions in terms of their risk-return profiles. As such, another stream of empirical work has set out to examine whether cross-industry diversification is beneficial or not for financial institutions from the perspective of

risk, return and the associated probability of bankruptcy. In what follows, this section sets out to summarise and contrast the key findings in the literature[58].

Despite the various methodological avenues followed in the extant literature, the evidence is mixed and the question still remains. This is also evident when one looks at the extensive surveys of the academic literature on this subject. Specifically, Kwan and Laderman (1999) find that securities activities, insurance broking, and insurance underwriting are riskier but more profitable than banking activities and provide the potential for diversification. Similar conclusions are drawn in Berger, Demsetz and Strahan (1999), where it is suggested that consolidation can increase profit efficiency and help diversify the portfolio risks of financial institutions. In the European front, Berger, DeYoung and Udell (2001) conclude that there is significant potential for efficiency gains through consolidation that is mainly attributable to risk diversification, yet most of it is offset by the existence of consolidation barriers. Furthermore, no consensus is reported in Saunders and Walter (1994) who review 18 studies on whether nonbanking activities reduce bank risk and report that nine studies answer yes, six answer no, while three are inconclusive.

In addition to the abovementioned surveys, there exists considerable empirical work on the subject. In an early study, Heggestad (1975) suggests that many nonbank activities are safer than banking and that there are potential diversification benefits in some nonbanking operations. Furthermore, Boyd and Graham (1986) find no significant relationship between either profitability or risk and nonbank activity. However, when the sample is split into two sub periods they find a strong positive correlation between nonbank share and risk in the first sub period. It is suggested that this is because BHC regulation was considerably tightened towards the end of the sample period. Brewer (1989) complements the previous study by finding no evidence of high BHC risk associated with nonbank activity, but reports a strong negative relation between risk and nonbank activity for the high risk BHCs. Using a similar framework, Brewer, Fortier and Pavel (1988) report a negative relation between the proportion of nonbank activity and BHC risk. Despite the considerable effort invested, the above studies are exposed to two considerable shortcomings. First, the nonbank activities are limited to those permitted during the sample period and thus it would not be wise to reflect the conclusions drawn from them onto nonbanking activities that

[58] A more detailed review of the empirical findings of risk-return studies is provided in the literature review section of chapter 6.

were impermissible at the time. What is more, the risk from any particular activity cannot be isolated as the results from those studies only hold for aggregated nonbanking activities.

In order to account for these drawbacks, a number of studies have used merger simulation techniques. For example, Boyd and Graham (1988) find that combinations between BHCs and securities firms, real estate developers and P/C insurance increase the volatility of returns and the risk of failure. On the other hand, they find that the expansion of BHCs into life insurance reduces both the volatility of returns and the risk of failure. In contrast, Laderman (1999) finds that either life/ insurance underwriting, property and casualty insurance underwriting or securities underwriting, reduce the probability of bankruptcy of the BHC. In the U.K. front, Genetay and Molyneux (1998) report mixed evidence on risk, with significantly lower probabilities of failure but insignificant changes in return on assets volatility for bancassurance combinations. At this point it is worth noting that the practice of randomly selecting pairs of companies without controlling for their size may inevitably lead to hypothetical pairs of large nonbanks and small BHCs. In this case the risk/return profile of the merged institution would not necessarily represent a high-quality combination in terms of risk and return. This setback is accounted for in Boyd, Graham and Hewitt (1993) and Lown, Osler, Strahan and Sufi (2000). The first find that mergers between BHCs and life or non-life insurance firms can be risk reducing when the appropriate asset portfolio weight combinations are chosen, whereas mergers with either securities or real estate companies are likely to increase BHC risk. The second conclude that mergers between bank holding companies and either securities firms or property and casualty firms would likely modestly raise BHC risk. However, they find that mergers between BHCs and life insurance companies lower the risk of both firms due to diversification benefits. Nevertheless, even after correcting for the problems identified in Brewer (1989) and Boyd and Graham (1986), merger simulation studies fail to account for three factors that may understate their results and, consequently, the conclusions drawn from them. First, they only consider mergers between one BHC and one nonbank firm and in this way ignore further possible diversification benefits from BHC combinations with more than one nonbanking firms. Second, the random selection of BHC-nonbank pairs does not necessarily reflect reality, where managers carefully select target companies based on their organisational and financial characteristics. Last but not least, serious biases in

their results and conclusions may arise from the fact that M&A costs and acquisition premia are disregarded, even though they can be substantial. The first issue is addressed in studies that use a portfolio approach. Specifically, Allen and Jagtiani (2000) find that nonbank activities reduce total risk but increase systematic market risk. Both securities and insurance activities have no significant effect on market risk premiums of universal banks. Moreover, while the interest rate risk premiums seem to be lowered by securities activities, it is not affected by insurance activities. Complementing their results, Estrella (2001) finds that both banking institutions and insurance companies can experience diversification benefits by converging.

The emergence of bank-insurance combinations in recent years has paved the way for a number of studies that have produced more reliable results. For instance, Nurullah and Staikouras (2008) deal with the issues affecting simulation studies by analysing actual bank-insurance combinations. The analysis at the aggregate industry level reveals that life and non-life insurance underwriting are riskier than banking, while insurance broking has higher returns and does not affect bank creditworthiness. On the other hand, the results of the analysis of synthetic bank-insurance structures show that life and non-life insurance significantly increase bank return volatility and the probability of bankruptcy. They conclude that best candidate for bank expansion is insurance brokerage. Another strand of research examines the phenomenon by looking at the relation between measures of bank diversification and performance and/or risk. In these cases diversification is not always found to be beneficial for financial institutions. For example, Stiroh and Rumble (2006) find that the increased risk adjusted performance across financial holding companies (FHCs) due to diversification benefits, is offset by the increased exposure to non-interest activities. Their results also suggest that increasing the diversification levels within FHCs does not bring improvements in risk adjusted performance. Finally, they report a negative relation between non-interest income and risk adjusted performance. Using a similar framework, Stiroh (2006) finds an insignificant relation between bank mean return and non-interest activities. On the other hand, his results point to a positive correlation between non-interest income share and total, market and idiosyncratic risk. Complementing the above studies, Stiroh (2004) provides further evidence against bank diversification. The results from the analysis at the industry level show that while the volatility of bank revenue has dropped overtime, this decline was due to the reduction in the volatility of net-interest income. On the other hand, the volatility of

non-interest income is found to have increased during the same period, together with the correlation between net- and non-interest income. The author suggests that banks' increasing focus on cross-selling might expose different lines of their business to the same shocks. Likewise, in the European front, diversification is found to be detrimental for small banks in Mercieca, Schaeck and Wolfe (2007), who find a negative relation between non-interest income and profitability and Z-scores, respectively. They conclude that financial institutions should rather focus on their core competencies. Complementing the above results, (Lepetit, Nys, Rous and Tarazi, 2008) report a positive and significant relationship between non-interest income share and both accounting- and market-based measures of risk for European banks. Conclusions drawn from U.S. studies are somewhat in line with those in Baele, De Jonghe and Vander Vennet (2007), who find that non-interest revenue share is positively associated with systematic risk and negatively related with idiosyncratic and total risk. The overall consensus from the literature on risk seems to be in line with expectations; although there is potential for risk reduction via non-interest income, this is exhausted at a relatively low level, after which risk increases. In essence, banks that rely heavily on non-interest sources of income are more exposed to market movements or economy-wide shocks.

Another important issue for financial conglomerates is whether diversification per se has a positive impact on the market valuations of institutions. In this respect Laeven and Levine (2007) find that diversification of bank based financial services firms is value destroying, since the market values of banks engaged in multiple activities are lower than the values those banks would have, if broken up into specialized firms. Similar conclusions are drawn in Schmid and Walter (2009) who report a substantial and persistent conglomerate discount in financial firms. Further tests by the authors verify that it is diversification that causes the discount and not that troubled firms choose to diversify in other areas. Interestingly, when combinations between banking and insurance or banking and investment banking are considered, they are found to offer a significant valuation premium. On the other hand Baele, De Jonghe and Vander Vennet (2007) find that diversified institutions are associated with higher return potential.

3.2.3. EVENT STUDY APPROACHES

Bank-insurance related announcements in the financial markets have been the subject of extensive scrutiny as the market reactions convey information on investor perceptions of the bancassurance interface. Event studies on bancassurance typically fall under two main categories, with the first involving studies that focus on the response of the market to specific deal announcements or certain related regulatory events and the second looking into the aggregate effects of a number of diversifying mergers on the stock prices of the involved institutions. In what follows, this section sets out to summarise and contrast the key findings in this literature[59].

Early event studies examine the market reactions to a number of court rulings/regulatory events that have implications on the interface between banks and insurance companies. For example, Carow (2001b) finds that banks experience insignificant excess returns around rulings that allow the sale of annuity products by banks. On the other hand, he finds that insurers experience negative and significant abnormal returns around the same rulings. With regards to rulings that allowed banks to sell insurance products, his results suggest that both banks and insurance companies experience insignificant valuations. Along the same lines, Cowan, Howel and Power (2002) report similar results. First, with regards to rulings that annuities are insurance products and subject to the town of 5000 rule, their results show that insurance companies experience positive and significant excess returns, while BHCs exhibit negative and significant valuations. Second, insignificant reactions from both industries are reported for rulings giving New York state banks the right to sell annuity products directly to their customers, rather than through a third party. Third, an insignificant reaction by insurers and a positive and significant reaction by BHCs is reported for rulings that allow the latter to underwrite annuities. Fourth, the authors report insignificant excess returns from both industries around rulings permitting national banks to sell annuities.

Further indirect evidence comes from studies that examine the effects of the Financial Services Modernization Act of 1999 (FSMA) on the stock prices of financial institutions. For example, Carow and Heron (2002) report that across their sample of firms, only insurance companies experience positive excess returns around

[59] A more detailed review of the empirical findings of event studies is provided in the literature review sections of chapters 4 and 5.

the announcement of the Act. In line with the above study, Hendershott, Lee and Tompkins (2002) find that insurance companies reap most of the benefits from deregulation, with the stock returns of commercial banks and investment banks remaining largely unaffected, while Neale and Peterson, (2005) report positive and significant excess returns for life and property and casualty insurance firms, but insignificant abnormal returns for accident and health as well as other insurance companies.

Another stream of empirical work delves into the impact of the Citicorp-Travelers merger in 1998 on the stock prices of peer institutions (Carow, 2001a; Johnston and Madura, 2000). The first study reports a positive and significant stock price reaction for life insurance companies and an insignificant reaction by the rest of the firms, while the second, point to positive and significant excess returns for all sectors considered.

A final set of indirect studies use the event study methodology to look into the effects of diversifying mergers on the involved institutions but yield contradicting results, most likely due to the market examined, or to the methodological approach followed. Specifically, DeLong (2001) finds that bank mergers that focus in terms of geography and activity are value-increasing, whereas bank mergers that diversify geography, activity, or both, do not create value. Nevertheless, his results are not verified in Lepetit, Patry and Rous (2004) who report that banks that either diversify activity or focus geography exhibit positive valuations.

The emergence of actual bank-insurance combinations in the last decades has resulted in studies that examine the effect that such deals have on the equity prices of banks and insurance companies. For example, Cybo-Ottone and Murgia (2000) find that the weighted abnormal return of the bidder and target firm around the announcement is positive and significant. Positive and significant abnormal returns for a sample of European M&A announcements are also reported in Beitel, Schiereck and Wahrenburg (2004).

More recent studies also yield conflicting results. Chen, Li, Moshirian and Tan (2007) find that bancassurance deals trigger significant reactions by the markets that negatively affect the stock prices of acquiring firms, while insignificant returns from bank-insurance deals are presented in Ekkayokkaya, Holmes and Paudyal (2007). Furthermore, Fields, Fraser and Kolari (2007a) find positive abnormal returns for the bidders and targets but not for the combined entity, whereas Fields, Fraser and Kolari

(2007b) report positive excess returns for bank and insurance bidders, but not for the mixed sample. More recently, Staikouras (2009), unveils significant abnormal returns surrounding the announcement of bank-insurance ventures. He also finds positive and significant abnormal returns for bank bidders, but reports negative and significant figures for the insurance-bidders. He also looks into bank-insurance divestments and unveils either statistically significant negative returns or insignificant figures, depending on the window examined.

Overall, the event-study evidence on the bancassurance phenomenon is relatively mixed. Specifically, while early indirect evidence on court rulings shows that insurers are either indifferent or react negatively to the entrance of banks into the insurance business, evidence on the FSMA (1999) shows quite the reverse, with insurance companies reaping the benefit from the removal of the barriers separating banking and insurance. The case becomes even more mixed when direct studies are taken into consideration, with some studies reporting significant excess returns – some positive and others negative – while others reporting insignificant results.

3.3. SUMMARY

The extant literature on financial conglomerates and bancassurance revolves around theoretical contributions that look into the causes, benefits and concerns of this consolidation trend and, on the other hand, around empirical investigations that embark to provide answers to the issues raised in the former studies.

Intense competition between financial intermediaries, the growing competition from capital markets, technology, deregulation and changing customer needs and sophistication, seem to be the main driving forces behind the creation of financial conglomerates and the adoption of bancassurance strategies. Proponents of this trend cite numerous benefits, both at the firm level and market level, such as synergies, increased efficiency and better diversification. In contrast, opponents call for attention due to serious public policy issues, such as increased systemic risk, monopoly powers and the access of these mega-firms to government subsidies.

Empirical studies examine the phenomenon from three different angles, looking at merger related efficiencies (inefficiencies) due to scale and scope economies (diseconomies) and improvement (deterioration) in the risk-return profiles of the institutions involved. Finally, others examine this issue from the perspective of the

market, through event studies. Interestingly, the results in all cases are mixed, perhaps due to sample or methodological differences.

The questions this study attempts to address, thereby extending the literature, are the following: What is the market reaction around bancassurance merger announcements? What are the firm and deal specific attributes that determine the market valuations of bidders in bancassurance deals? Do mergers and acquisitions between banks and insurance firms affect the total risk – and its market and idiosyncratic components – of the bidders? What are the firm specific factors that determine the risk components of acquirers and, are these relationships altered following the deals? Finally, do large bancassurance deals trigger risk-return spillover effects that affect their peer institutions, and if so, are the effects of competitive or contagion nature?

4. BANCASSURANCE DEAL ANNOUNCEMENTS: THE MARKET PERCEPTIONS

4.1. INTRODUCTION

During the last three decades the financial services sector has undergone a major restructuring in terms of the interface between financial firms. Forces like technological innovations, regulatory changes, reduced international trade barriers and the growing economic linkages across countries, are just a few of the reasons why the trend towards the creation of financial conglomerates has been growing both at the domestic and international level (Goddard, Molyneux, Wilson and Tavakoli, 2007; Staikouras, 2006). The banking and insurance industries, being no exception, have experienced similar shake-ups that dramatically changed the way they conduct their business both at the corporate and retail levels. More specifically, bancassurance has allowed banks to diversify their income streams through fee generating activities, while at the same time has expanded the customer reach of insurers.

Corporate restructuring in the banking industry has been the subject of extensive scrutiny over the last two decades, with the majority of empirical evidence unveiling significant losses for bidders, as well as wealth transfers from bidders to targets (Amihud, DeLong and Saunders, 2002; Bhargava and Fraser, 1998; DeLong, 2001; Houston and Ryngaert, 1994)[60]. The bank-insurance evidence, however, is rather insufficient as it is either generated by a limited number of cases (Beitel, Schiereck and Wahrenburg, 2004; Cybo-Ottone and Murgia, 2000), or indirectly inferred by the stock price reactions of banks and insurers to the announcement of major changes in the U.S. market (Carow, 2001a; b; Carow and Heron, 2002; Carow and Kane, 2002; Cowan, Howell and Power, 2002; Hendershott, Lee and Tompkins, 2002; Johnston and Madura, 2000; Neale and Peterson, 2005). In addition, indirect event studies that look into the effects of diversifying mergers on firm value yield contradictory findings for U.S. and European samples respectively (DeLong, 2001; Lepetit, Patry and Rous, 2004). Not surprisingly, a limited number of studies with direct evidence on

[60] While there are numerous studies dealing with the stock market reactions to announcements of bank merger and acquisitions and bank acquisitions of security firms, it is not the intention of this chapter to report all findings. To keep the task manageable, the results of a small fraction of these studies are reported. See Amel, Barnes, Panetta and Salleo (2004) and Carow and Kane (2002) for detailed reviews.

bancassurance also yield mixed results (Chen, Li, Moshirian and Tan, 2007; Ekkayokkaya, Holmes and Paudyal, 2007; Fields, Fraser and Kolari, 2007a; b).

This chapter contributes to the bancassurance literature where more research is deemed necessary. This is because the bank-insurance literature has provided indirect evidence regarding the wealth effects of financial conglomerates, while only a couple of studies have examined the direct impact of the bank-insurance phenomenon as discussed above. This chapter provides new and broader findings on the stock price reaction to all available bank-insurance ventures. Based on a large multinational sample of banks and insurance companies, evidence is provided on the effect of deals that led to bancassurance structures between 1990 and 2006. Specifically, sub-samples are formed to examine whether the bidder's nature (bank or insurer) is essential in shaping any excess compensation for their equity holders. The chapter further focuses on the geographical characteristics of the sample by analyzing deals that took place on a domestic, regional as well as international level. Moreover, the deals' size and cultural similarities between the institutions involved in the formation of financial conglomerates are also taken into account. Finally, all available bank-insurance divestments are examined in order to provide further insight into whether the market favours such corporate restructurings.

In what follows, section 2 provides a review of the existing body of event-study research on bancassurance. Section 3 introduces the data and the methodology employed. Section 4 presents the empirical results, while Section 5 concludes the chapter.

4.2. Literature Review

The current section explores the extant event-study evidence on bancassurance and critically discusses the empirical findings. As discussed in the introduction, the event-study evidence associated with the blurring boundaries across financial institutions and specifically banks and insurance companies, falls under two main categories depending on the approach used. The first category involves indirect studies, which a) either focus on the response of the market to specific deal announcements and the effect on peer companies, or examine the market's reaction to certain related regulatory events, or b) use an event study methodology to look into the effects of diversifying mergers on the involved institutions. The second category involves direct

studies which focus on the impact of actual bank-insurance deals on the stock prices of the involved institutions. This category can be further broken down into: a) studies that examine a very limited number of bank-insurance mergers and b) a small number studies that used an adequate number of bank-insurance deals.

Early event studies examine the bancassurance phenomenon in an indirect manner, mainly by gauging the market responses to a number of court rulings/regulatory events that have implications on the interface between banks and insurance companies. For example, Carow (2001b) studies the effect of 3 rulings of the Office of the Comptroller of Currency (OCC) and 3 Supreme Court rulings allowing banks to sell annuities and insurance products, on the stock prices of 133 banks and insurance companies. His results suggest that banks experience insignificant excess returns around rulings that allow the sale of annuity products by banks. On the other hand, he finds that insurers experience a negative and significant abnormal return of -2.39% around the same rulings. With regards to rulings that allowed banks to sell insurance products, his results suggest that both banks and insurance companies experience insignificant valuations. In a similar vein, Cowan, Howel and Power (2002) examine the stock market reaction of 59 life insurance companies and 88 Bank Holding Companies (BHCs) to four court and regulatory decisions affecting banks' rights to originate and market annuity products. First, with regards to rulings holding that annuities are insurance products and subject to the town of 5000 rule, their results show that insurance companies experience a positive and significant excess return, while and BHCs negative and significant valuations. As suggested, this result is somewhat expected given that in the absence of this rule, fee revenues and profits would be diverted from insurance companies to banks. Second, insignificant reactions from both industries are reported for rulings giving New York state banks the right to sell annuity products directly to their customers, rather than through a third party. According to the authors this reaction is expected since expanded bank-insurance activities would be value adding for banks and not value-destroying for insurers. Third, an insignificant reaction by insurers and a positive and significant reaction by BHCs, is reported for rulings that allow the latter to underwrite annuities. Fourth, the authors report insignificant excess returns from both industries around rulings permitting national banks to sell annuities.

Further indirect evidence comes from studies that examine the effects of the Financial Services Modernization Act of 1999 (FSMA) on the stock prices of

financial institutions. For example, Carow and Heron (2002) delve into the stock price reaction of a sample of U.S. financial institutions[61] to 6 events leading to the passage of the Gramm-Leach-Bliley Act. His results represent the overall effect across the six events, and suggest that across the sample of firms, only insurance companies experience a positive excess return. The authors suggest that the benefits from bank diversification into non-banking have been already reflected on bank stock prices. In line with the above study, Hendershott, Lee and Tompkins (2002) examine the stock market reactions of 297 commercial banks, 36 investment firms and 139 insurance companies around the time of the announcement of the FSMA (1999)[62]. Corroborating the findings of Carow and Heron (2002), their results show that insurance companies reap most of the benefits from deregulation, with stock returns of commercial banks and investment banks remaining largely unaffected. In an analogous study on the effects of 10 events leading to the passage of the FSMA (1999) on the insurance industry[63], Neale and Peterson, (2005) report positive and significant excess returns for life and property and casualty insurance firms, and insignificant abnormal returns for accident and health as well as other insurance companies.

Another stream of empirical work delves into the impact of Citicorp-Travelers merger in 1998 on the stock prices of peer institutions (Carow, 2001a; Johnston and Madura, 2000). The first study reports a positive and significant stock price reaction for life insurance companies but an insignificant reaction by the rest of the firms considered in the sample[64]. The second study, which only considers a much smaller sample of 12 large banks, 26 insurance companies and 24 securities firms, points to positive and significant excess returns for all sectors considered. Similar to results from studies on the FSMA (1999), as reported above, insurance companies seem to reap most of the benefits from bancassurance.

A final set of indirect studies use the event study methodology to look into the effects of diversifying mergers on the involved institutions but yield contradicting

[61] Their sample includes 247 banks, 10 foreign banks, 145 thrifts, 32 finance companies, 33 Investment banks and 85 Insurance companies.

[62] Similar to Carow and Heron (2002) their analysis is based on 7 events leading to the announcement of FSMA (1999).

[63] Their sample includes 33 life Insurance companies, 13 accident and health insurance firms, 40 property and casualty insurance companies and 51 other insurance firms.

[64] His sample includes 133 national banks, 117 state banks, 30 life insurance companies, 26 health insurance firms and 67 property and casualty insurance companies.

results, most likely due to the market examined, or to the methodological approach followed. Specifically, DeLong (2001) examines the wealth effects of 280 mergers between U.S. banks from 1988 to 1995. The author categorises mergers based on whether the latter focus or diversify across the dimensions of activity and geography. The results show that while bank mergers that focus in terms of geography and activity are value-increasing, bank mergers that diversify geography, activity or both, do not create value. Nevertheless, his results are not verified in a similar study that employs a European sample of 180 deals between 1991 and 2001, where banks that either diversify activity or focus geography exhibit positive valuations (Lepetit, Patry and Rous, 2004). It is important to note here that the divergence in the results of the above studies could also be due to the fact that the latter study employs a bivariate GARCH approach.

The emergence of actual bank-insurance combinations has resulted in studies that examine the effect that such deals have on the equity prices of banks and insurance companies. For example, Cybo-Ottone and Murgia (2000) delve into the valuation effects of European mergers and acquisitions between 1988 and 1997. Their findings with regards to 10 bank-insurance mergers that are present in the sample, show that the weighted abnormal return of the bidder and target firm around the announcement is positive and significant. Positive and significant abnormal returns for a sample of European M&A announcements between 1985 and 2000 are also reported in Beitel, Schiereck and Wahrenburg (2004). Even though their sample includes 11 bank-insurance mergers, the study only provides aggregate results for the whole sample and as such, direct inferences on bancassurance cannot be made.

Furthermore, there is a limited number of more recent event studies that provide direct evidence on the effects of bancassurance on the stock prices of acquiring institutions. Nevertheless, the results remain mixed. Chen, Li, Moshirian and Tan (2007) focus on 42 European bancassurance mergers between 1983 and 2004. Their results show that bancassurance deals trigger significant reactions by the markets that negatively affect the stock prices of acquiring firms. On the contrary, insignificant returns from bank-insurance deals are presented in Ekkayokkaya, Holmes and Paudyal (2007), whose sample includes 36 European bancassurance mergers and acquisitions initiated between 1990 and 2004. Furthermore, in two more comprehensive studies on a global sample of bank-insurance mergers Fields, Fraser and Kolari (2007a; b) use the same sample of 129 deals between 1997 and 2004 and

examine it from two different perspectives. In the first study, they analyse the effect of bancassurance announcements on the stock prices of bidders, targets as well as on the combined entity, and find positive abnormal returns for the first and second but not for the third group, respectively (Fields, Fraser and Kolari, 2007a). The second study looks into the effect of the same set of bank-insurance merger announcements on the stock prices of bank bidders, insurance bidders as well as on the full sample. Their results show positive excess returns for bank and insurance bidders but not for the whole sample (Fields, Fraser and Kolari, 2007b). A significant drawback of these two studies is that they fail to take into account the differences in the risk-return profiles of banks when the latter merge with insurance companies as opposed to mergers with insurance agents/brokers (Boyd, Graham and Hewitt, 1993; Nurullah and Staikouras, 2008). In failing to differentiate between the two, the results can be misleading.

Overall the empirical event study evidence on the bancassurance phenomenon is relatively mixed. Specifically, while early indirect evidence on court rulings shows that insurers are either indifferent or react negatively to the entrance of banks into the insurance business, evidence on the FSMA (1999) shows quite the reverse, with insurance companies reaping the benefit from the removal of the barriers separating banking and insurance. The case becomes even more mixed when direct studies are taken into consideration, with some studies reporting significant excess returns – some positive and others negative – while others reporting insignificant results. It is important to note here that this might be due to the fact that the existing empirical evidence suffers from two considerable drawbacks. First, the majority of the findings come from studies that are indirectly assessing the phenomenon and therefore the results cannot necessarily be projected to actual bancassurance cases. Second, direct studies on bank-insurance deals suffer from either small sample biases, or from the fact that they fail to differentiate between bank acquisitions of insurance firms, and bank acquisitions of insurance agents/brokers. As such, the conclusions drawn from these studies can be unrealistic and biased.

4.3. DATA AND METHODOLOGY

This chapter examines the impact of a wide range of bank-insurance corporate restructurings on the equity prices of acquirers/sellers. The bancassurance corporate restructurings database used here comprises of 226 deal announcements. This sample represents all available international bancassurance-related merger and acquisition (M&A) and divestiture/spin-off announcements, recorded by official wire services between 1990 and 2006. Specifically, information on these deals is collected by the Thomson One Banker deals database, while it is verified by Bloomberg's corporate calendar. The current investigation considers the following types of deals: a) public banks' bids for public/private insurance companies, b) public banks' bids for insurance agencies, c) public insurance companies' bids for public/private banks, and finally d) corporate divestments/spin-offs of previously established bank-insurance structures. Bank-insurance deals that involve rescue motivations are not considered in the current analysis. Table 4.1 represents the distribution of the sample of bidders and targets by country and deal type, while Table 4.2 represents the composition of the sample of deals by year and deal type.

Table 4.1. Sample Distribution of bidders and targets by country and deal type

	All Deals		Bank-Insurance		Assure-banking		Bank-Insurance agency		Sell-Offs	
Region/Country	Bidders	Targets	Bidders	Targets	Bidders	Targets	Bidders	Targets	Divestitures	Spin-offs
Europe (ex. UK)	56	51	33	31	19	17	4	3	12	1
United Kingdom	6	6	6	5	0	1	0	0	0	0
United States	129	132	42	45	1	0	86	87	2	1
Canada	8	5	8	5	0	0	0	0	0	0
Australia	5	5	5	4	0	0	0	0	0	0
Asia	5	5	5	6	0	0	0	0	0	0
L.America	1	5	1	3	0	2	0	0	0	0
Africa	0	1	0	1	0	0	0	0	0	0
Total	**210**	**210**	**100**	**100**	**20**	**20**	**90**	**90**	**14**	**2**

The table presents the distribution of the sample of bidders and targets by country and by deal type. The sample consists of available international data collected for 226 publicly announced deals between 1990 and 2006. Information on deals is obtained by Thomson One Banker and Bloomberg's corporate calendar. The sample of bank-insurance announcements consists of 100 deals where the bidder is a bank and the target an insurance company, while the sample of bank-insurance agency announcements consists of 90 deals where the bidder is a bank and the target an insurance agency. Finally, the sample of insurance-banking announcements consists of 20 deals where the bidder is an insurance company and the target a bank. The sample of divestitures and spin-offs represents corporate exits from the bancassurance framework.

Table 4.2. Sample Distribution by year and deal type

Year/Deal Type	Mergers and acquisitions				Sell-Offs	
	All Deals	Bank-Insurance	Insurance-Banking	Bank-Insurance Agency	Divestitures	Spin-offs
1990	1	0	1	0	0	0
1991	3	3	0	0	0	0
1992	3	2	1	0	0	0
1993	6	2	1	3	0	0
1994	8	4	3	1	0	0
1995	6	5	1	0	0	0
1996	8	4	0	4	0	0
1997	11	8	2	1	0	0
1998	14	6	2	6	2	0
1999	20	10	2	8	1	0
2000	23	10	2	11	0	0
2001	20	11	3	6	5	1
2002	26	10	1	15	2	0
2003	26	10	0	16	1	1
2004	17	6	1	10	1	0
2005	16	8	0	8	2	0
2006	2	1	0	1	0	0
Total	**210**	**100**	**20**	**90**	**14**	**2**

The table presents the decomposition of the sample of deals by year of announcement and by deal type. The sample consists of available international data collected for 226 publicly announced deals between 1990 and 2006. Information on deals is obtained by Thomson One Banker and Bloomberg's corporate calendar. The sample of bank-insurance announcements consists of 100 deals where the bidder is a bank and the target an insurance company, while the sample of bank-insurance agency announcements consists of 90 deals where the bidder is a bank and the target an insurance agency. Finally, the sample of insurance-banking announcements consists of 20 deals where the bidder is an insurance company and the target a bank. The sample of divestitures and spin-offs represents corporate exits from the bancassurance framework.

Looking at the distribution of the sample in Table 4.1, it is evident that the majority of the deals involve U.S. and European firms. It is also notable that while deals where banks acquire insurance companies (bank-insurance) are fairly evenly distributed across the U.S. and Europe, the same does not apply to deals where insurance companies acquire banks (assure-banking) or divestitures, where the majority of these are initiated within the European borders. On the contrary, the phenomenon of banks acquiring insurance agents/brokers is mainly observed in the U.S. with only a small fraction of these deals appearing in Europe, while none taking place in the rest of the world. Shifting the focus to the distribution of the sample per year in Table 4.2, it is noticeable that most of the deals are initiated within the 1997-2005 period. This is reasonable if one takes into account the removal of the existing regulatory barriers between banks and insurance companies in the U.S. by the Financial Services Modernization Act of 1999. On the other hand the majority of deals in the pre-1999 period come from deals involving European companies given that the restrictions on the particular market were removed earlier, by the Second Banking Directive of 1989.

It is important to note here, that a number of deals were announced and completed in the U.S. prior to the FSMA 1999, but under specific regulatory approvals. Ten deals that fall in this category are included in the sample here and detailed information on these is provided in Table C.1 in appendix C.

With regards to the data, daily acquirer stock prices are collected from Thomson Datastream and logarithmic stock returns are calculated for the purpose of the econometric estimations. All return series have been checked and adjusted for non-trading days, public holidays and market interruptions in the sample period. All announcements are made on trading days except the merger between Allianz AG and Dresdner Bank, which is announced on a Sunday[65]. In cases where more than one announcement involving the same acquirer and different targets is made on the same day, the analysis treats these cases as one and only considers the simultaneous effect of both announcements on the bidder. In addition to bank-insurance partnership announcements a control sample is also incorporated. The control sample consists of 50 M&A deal announcements that do not involve bancassurance structures, but cases where at least one of the firms, generally the bidder, is either a bank or an insurance company.

This chapter aims to uncover whether bank-insurance venture announcements trigger trading movements that significantly affect the equity returns of acquiring firms, on and/or around the announcement(s) period. Specifically, the subsequent research questions addressed in this empirical chapter are; a) whether the market distinguishes bank-insurance initiatives based on the structure of the ventures (*i.e.* bank-insurance, assure-banking, bank-insurance agency), b) whether/how it reacts to subsequent exits from bancassurance structures via sell-offs (i.e. divestitures, spin-offs), and finally c) whether and how the market valuates the above ventures based on a variety of company and deal characteristics (*i.e.* domestic vs. international deals, size of deal, geographic origin of bidder).

The methodology proposed by Brown and Warner (1985) is an event study approach that suits the purpose of this analysis, given its wide application in the academic literature in assessing and drawing inferences about the impact of an event on security prices around a specific time interval(s). Specifically, the approach entails the identification of an equity return generating process and the use of two distinct

[65] In this case the announcement date is brought forward by one trading day.

periods; the estimation period, where equity returns for at least one year prior to the event are used to estimate parameters of the return generating process, and the event study period, where the estimated parameters are used to generate forecasts over a pre-determined event window. In particular, the analysis here is based on an estimation period of 200 trading days (-241 to 41) prior to the event announcement(s) ($t = 0$), leaving an 81-day (-40, + 40) window for the event study period. As a robustness check, these steps have also been performed using a 121-day event study period (-60, +60 window) that required an estimation period of 261 to 61 days prior to the event announcement(s).

The ordinary least squares (OLS) estimations are based on a univariate framework and, when statistically appropriate a multivariate representation is employed to model stock returns. The model takes the following algebraic form:

$$AR_{it} = R_{it} - E(R_{it}|\phi_{it}) \equiv R_{it} - (a_i + \beta_{mi} R_{mt} + \beta_{Ii} I_t) \quad (4.1)$$

$$CAR = \sum_{t=-n}^{n} AR_t \quad (4.2)$$

where R_{it} is the return on stock i in period t, R_{mt} is the return on the market portfolio or industry proxy (obtained from the main market index of the exchange where each bidder is listed, while industry returns refer to the return on the respective sector index i.e. bank or insurance index depending on the nature of the bidder)[66], I_t is the change on T-bill rates – used as proxy for interest rate risk and when not available the respective inter-bank rates are employed, $E(\cdot|\phi_{it})$ denotes expectation depending on the information set, and CAR stands for cumulative abnormal returns.

Average abnormal returns (AARs) are constructed by averaging out the estimated ARs of individual companies in each particular sample, while cumulative average abnormal returns (CAARs) are obtained by aggregating the AARs over different time periods within the event window. Finally, CAARs represent the total effect of the bank-insurance events across the sample of companies and across a specified time interval.

[66] The market proxies are FTSE ALL, S&P500, DAX etc., while for the sector proxies FTSE-Banks, S&P500-Banks etc are used. In countries where industry indices are not available the sector indices compiled by DataStream are employed.

4.4. EMPIRICAL FINDINGS

This chapter seeks to assess the markets' perception of various types of bancassurance partnership announcements and sell-offs by analysing the equity movements of the acquiring/selling firms around these events. Specifically, excess returns are estimated over different periods surrounding the announcement day(s). The different event windows aim to assess the stock markets' reaction from five different angles. First, the analysis concentrates on whether possible information leakages lead to the appearance of abnormal returns in periods leading to the announcement date (day zero). As such, various intervals leading to day zero are explored. Second, based on the aforesaid event intervals, cumulative abnormal returns from symmetric windows (same number of days before and after day zero) are also examined to gauge the events' general impact on the stock prices. Third, intervals which include a period prior to the particular event as well as one trading day after day zero are also examined. Fourth, post-event intervals are examined to consider the existence of any persistence in abnormal performance following the deals. The first set of empirical findings for all bank-insurance deals and the control sample is reported in Table 4.3.

Table 4.3. Cross-section analysis of all bank-insurance deals

Event Period		*Excess Returns via Market Index*		*Excess Returns via Industry Index*		*Excess Returns Control Sample of FI*	
(-1, 0)	(0, +1)	0.73%	0.62%	0.57%	0.51%	-0.75%	-1.24%
		(3.52) [a]	(2.99) [a]	(3.17) [a]	(2.83) [a]	-(1.69) [c]	-(2.79) [a]
(-2, 0)	(0, +2)	0.51%	0.20%	0.34%	-0.03%	-1.25%	-1.14%
		(2.00) [b]	(0.78)	(1.56)	-(0.13)	-(2.31) [b]	-(2.11) [b]
(-3, 0)	(0, +3)	0.40%	0.36%	0.22%	0.03%	-1.19%	-0.99%
		(1.36)	(1.23)	(0.88)	(0.12)	-(1.90) [c]	-(1.58)
(-4, 0)	(0, +4)	0.30%	0.39%	0.18%	0.16%	-1.14%	-1.40%
		(0.91)	(1.19)	(0.65)	(0.57)	-(1.62)	-(2.00) [b]
(-5, 0)	(0, +5)	0.08%	0.18%	0.03%	0.00%	-1.20%	-0.92%
		(0.22)	(0.49)	(0.10)	-(0.01)	-(1.56)	-(1.20)
(-10, 0)	(0,+10)	0.04%	0.40%	-0.13%	0.31%	-2.09%	-1.81%
		(0.07)	(0.81)	-(0.31)	(0.74)	-(2.01) [b]	-(1.74) [c]
(-20, 0)	(0,+20)	0.11%	0.31%	-0.23%	0.59%	-3.42%	-2.63%
		(0.16)	(0.47)	-(0.39)	(1.02)	-(2.39) [a]	-(1.83) [c]
Event Period							
(0, 0)	(-1, +1)	0.67%	0.68%	0.55%	0.52%	-0.63%	-1.36%
		(4.57) [a]	(2.68) [a]	(4.36) [a]	(2.38) [a]	-(2.00) [b]	-(2.50) [a]
(-2,+1)	(-2, +2)	0.46%	0.04%	0.30%	-0.24%	-1.86%	-1.77%
		(1.56)	(0.11)	(1.17)	-(0.85)	-(2.97) [a]	-(2.52) [a]
(-3,+1)	(-3, +3)	0.35%	0.09%	0.18%	-0.30%	-1.80%	-1.55%
		(1.06)	(0.23)	(0.62)	-(0.90)	-(2.57) [a]	-(1.87) [c]
(-4,+1)	(-4, +4)	0.25%	0.02%	0.14%	-0.21%	-1.75%	-1.91%
		(0.69)	(0.04)	(0.45)	-(0.55)	-(2.28) [b]	-(2.03) [b]
(-5,+1)	(-5, +5)	0.03%	-0.41%	-0.01%	-0.52%	-1.81%	-1.49%
		(0.07)	-(0.85)	-(0.04)	-(1.25)	-(2.18) [b]	-(1.44)
(-10,+1)	(-10, +10)	-0.01%	-0.24%	-0.18%	-0.37%	-2.70%	-3.27%
		-(0.03)	-(0.36)	-(0.40)	-(0.64)	-(2.49) [a]	-(2.28) [b]
(-20,+1)	(-20, +20)	0.06%	-0.25%	-0.28%	-0.19%	-4.03%	-5.43%
		(0.08)	-(0.27)	-(0.46)	-(0.23)	-(2.75) [a]	-(2.71) [a]

The sample here consists of 120 bancassurance deals announced between 1990 and 2006 and excludes deals where the targets are insurance agencies (90 cases). After adjusting for multiple bids* the sample size drops to 113 bancassurance deals. The reported values are cumulative average abnormal returns for the overall international sample of bank-insurance deals excluding deals where the targets are insurance agencies. The control sample involves 50 deals between financial institutions (FI), at least one bank or insurance that does not pursue bank-insurance structures. The event windows are presented under the first two columns and excess returns are reported in that order under each of the subsequent three headings. Abnormal returns are calculated using standard event study methodology with a two-factor variant of the market model – where statistically necessary. As a proxy for market risk, the general market index and sector specific index are employed separately. The figures in brackets indicate t-values.

* Multiple bids arise when institutions announce the acquisition of more than one target on a given day. To avoid multiple counting of the same effect we treat these cases as one when averaging out the ARs and CARs.

a/b/c denote significant CAAR at the 0.02/0.05/0.10 level (two-tailed test) for the pertinent event period.

Looking at the excess returns from the windows close to the events' announcement it is clear that the acquiring institutions experience significant abnormal returns irrespective of the index employed as a proxy for the market. Specifically, all the CAARs arising from combinations of windows within the three-day [-1 +1] period, are positive and significant for institutions that pursue bancassurance structures, while negative and significant for institutions announcing deals that lead to structures other than bancassurance. Focusing on bank-insurance deals, although the presence of information leakage is implied by the positive and statistically significant CAARs in the event windows leading to the announcement day, the AARs one and two days

prior to the announcement are statistically insignificant[67]. The absence of any excess returns prior to day zero has two main implications; first, it corroborates the notion that the market did not anticipate these announcements, and second, it reinforces the strong average excess return (0.67%) witnessed on the announcement day [0 0]. Moving on to the symmetric windows, the positive and significant average excess returns dissipate outside the 3-day [-1 +1] window. A similar pattern is observed in the post-event windows where CAARs do not persist for a long period, fading away after the 3-day [0 +2] window. Given the above, it can be deduced that the market seems to be efficient in the way information is disseminated and absorbed by investors. On the other hand, when the control sample is considered, the negative and significant cumulative average excess returns are apparent across the majority of event windows examined. It is also noticeable that the reaction persists even when large intervals are taken into account, with the respective acquiring institutions shedding as much as 2.63% [0 +20] or 5.43% [-20 +20] of their value.

The conclusions that can be drawn from the results reported above are the following: First, the analysis of the control sample corroborates the typical findings of the literature on mergers and acquisitions between financial institutions. More specifically, target shareholders are generally found to gain value at the expense of acquirer shareholders, which in turn experience negative excess returns around M&A announcements between banks, or those between banks and securities firms (Amihud, DeLong and Saunders, 2002; Bhargava and Fraser, 1998; DeLong, 2001; Houston and Ryngaert, 1994). Second, the results are consistent with the findings of limited direct event-study evidence on bank-insurance mergers. Specifically, (Fields, Fraser and Kolari, 2007a; b) report positive average excess returns for acquirers in their analysis of an international sample of bancassurance deals, while Cybo-Ottone and Murgia (2000) find positive and significant excess returns for a small European sample of bank-insurance cases. Nevertheless, the above results are in contrast with Chen, Li, Moshirian and Tan (2007) who report negative average excess returns in examining a sample of European bank-insurance partnership announcements. Similarly, the conclusions here are not in line with DeLong (2001) when her sample of diversifying deals is considered, as she finds that diversifying deals in terms of activity and/or geography do not create shareholder value. One explanation might be that her sample

[67] The average abnormal return for day -1 is 0.06% and the respective figure for day -2 is -0.22%. Both figures are statistically insignificant even at the 10% level.

of diversifying deals does not differentiate between bank-insurance mergers and bank-securities mergers, where the latter have been indeed found to destroy shareholder value. On a theoretical level, the positive reaction of the market to bancassurance partnership announcements is in line with Johnston and Madura (2000) and Nurullah and Staikouras (2008) who argue that banks could benefit from bancassurance by exploiting cross-selling opportunities and increases in non-interest income. In other words, the positive excess returns could be associated with the fact that, by exploiting bancassurance, banks can reduce their dependence on loans as a primary source of income (Broome and Markham, 2000) and diversify their revenues (Felgran, 1985; Szego, 1986).

In an attempt to assess whether stock market adjustments differ depending on the nature (sector) of the bidder or, in other words, the direction of the deal, the current section discriminates between banks and insurance firms. Staikouras (2006) discusses the possible dynamics underpinning these distinct corporate entities by pointing towards the strong bank brand value, range of services provided, reputation, multi-branch facilities etc. which can be appealing to market investors. Based on the above, this section distinguishes between deals where a bank bids for an insurance company and deals where the insurer takes the lead. The findings provide an interesting insight as to how different industries react to the bank-insurance ventures. The results are presented in Table 4.4.

Table 4.4. Bank bidder vs Insurance bidder announcements

		Bank Bidder				*Insurance Bidder*			
		Excess Returns via		*Excess Returns via*		*Excess Returns via*		*Excess Returns via*	
Event Period		*Market Index*		*Industry Index*		*Market Index*		*Industry Index*	
(-1, 0)	(0, +1)	0.82%	0.87%	0.63%	0.68%	0.28%	-0.62%	0.27%	-0.35%
		(3.76) [a]	(3.99) [a]	(3.17) [a]	(3.43) [a]	(0.56)	-(1.25)	(0.61)	-(0.79)
(-2, 0)	(0, +2)	0.58%	0.31%	0.41%	-0.02%	0.16%	-0.36%	0.01%	-0.07%
		(2.17) [b]	(1.17)	(1.69) [c]	-(0.09)	(0.26)	-(0.59)	(0.02)	-(0.13)
(-3, 0)	(0, +3)	0.46%	0.51%	0.31%	0.09%	0.12%	-0.39%	-0.24%	-0.28%
		(1.47)	(1.66) [c]	(1.12)	(0.32)	(0.16)	-(0.55)	-(0.38)	-(0.45)
(-4, 0)	(0, +4)	0.40%	0.64%	0.30%	0.31%	-0.20%	-0.86%	-0.37%	-0.55%
		(1.16)	(1.86) [c]	(0.94)	(0.97)	-(0.25)	-(1.08)	-(0.53)	-(0.80)
(-5, 0)	(0, +5)	0.11%	0.48%	0.07%	0.20%	-0.06%	-1.31%	-0.17%	-1.02%
		(0.28)	(1.27)	(0.21)	(0.59)	-(0.07)	-(1.52)	-(0.22)	-(1.34)
(-10, 0)	(0,+10)	0.09%	0.52%	-0.11%	0.32%	-0.26%	-0.23%	-0.21%	0.27%
		(0.18)	(1.02)	-(0.25)	(0.69)	-(0.22)	-(0.19)	-(0.21)	(0.26)
(-20, 0)	(0,+20)	-0.16%	0.47%	-0.47%	0.53%	1.43%	-0.46%	0.96%	0.90%
		-(0.22)	(0.66)	-(0.73)	(0.83)	(0.88)	-(0.28)	(0.68)	(0.63)
Event Period									
(0, 0)	(-1, +1)	0.82%	0.88%	0.64%	0.67%	-0.05%	-0.29%	0.11%	-0.19%
		(5.29) [a]	(3.28) [a]	(4.58) [a]	(2.74) [a]	-(0.15)	-(0.48)	(0.35)	-(0.35)
(-2,+1)	(-2, +2)	0.63%	0.08%	0.45%	-0.25%	-0.41%	-0.16%	-0.45%	-0.17%
		(2.06) [b]	(0.22)	(1.59)	-(0.81)	-(0.59)	-(0.20)	-(0.72)	-(0.24)
(-3,+1)	(-3, +3)	0.51%	0.15%	0.35%	-0.24%	-0.46%	-0.22%	-0.69%	-0.62%
		(1.48)	(0.37)	(1.12)	-(0.64)	-(0.58)	-(0.24)	-(1.00)	-(0.76)
(-4,+1)	(-4, +4)	0.45%	0.23%	0.33%	-0.04%	-0.77%	-1.00%	-0.82%	-1.03%
		(1.20)	(0.49)	(0.97)	-(0.10)	-(0.89)	-(0.94)	-(1.08)	-(1.11)
(-5,+1)	(-5, +5)	0.16%	-0.23%	0.11%	-0.37%	-0.63%	-1.32%	-0.63%	-1.30%
		(0.40)	-(0.45)	(0.29)	-(0.79)	-(0.68)	-(1.13)	-(0.76)	-(1.26)
(-10,+1)	(-10, +10)	0.15%	-0.20%	-0.08%	-0.44%	-0.83%	-0.43%	-0.67%	-0.05%
		(0.28)	-(0.28)	-(0.16)	-(0.68)	-(0.67)	-(0.27)	-(0.62)	-(0.03)
(-20,+1)	(-20, +20)	-0.10%	-0.50%	-0.43%	-0.58%	0.85%	1.02%	0.51%	1.75%
		-(0.14)	-(0.51)	-(0.66)	-(0.65)	(0.51)	(0.45)	(0.35)	(0.88)

The sample here consists of 100 cases where banks bid for insurers and 20 bank-insurance deals where the bidder is an insurance firm. The sample period is 1990-2006. After adjusting for multiple bids* the sample size drops to 94 bank to insurance deals and 19 insurance to bank deals. The reported values are cumulative average abnormal returns for the international sample of these announcements, excluding deals where the targets are insurance agencies. The event windows are presented under the first two columns and excess returns are reported in that order under each of the subsequent four headings. Abnormal returns are calculated using standard event study methodology with a two-factor variant of the market model – where statistically necessary. As a proxy for market risk, the general market index and sector specific index are employed separately. The figures in brackets indicate t-values.

* Multiple bids arise when institutions announce the acquisition of more than one target on a given day. To avoid multiple counting of the same effect we treat these cases as one when averaging out the ARs and CARs.

a/b/c denote significant CAAR at the 0.02/0.05/0.10 level (two-tailed test) for the pertinent event period.

A comparison between the cumulative average excess returns experienced by bank bidders versus the respective returns experienced by insurance bidders clearly shows that the market places more weight on the former or, in other words, on deals where banks take the lead. Specifically, the CAARs are much higher for bank bidders when compared to those of insurance bidders. The significance of the bank's equity excess returns seems to dominate the five-day window [-2 +2], while using the market index such significance is extended up to 4 days after the announcement. Conversely, when insurance bidders are examined, there is no significant abnormal return prior to/on the announcement day, while most of the other CAARs are negative and statistically insignificant. It is also interesting that in many cases, the negative returns experienced

by insurance bidders, exhibit a much higher value than the positive returns obtained by bank-bidders. These results are in line with Fields, Fraser and Kolari (2007b) who find positive and significant excess returns for bank bidders, but insignificant returns for insurance bidders. In a study of the U.S. market, Carow (2001b) hints a word of warning, as equity values of insurance firms are plummeting as a result of court rulings that allow banks to sell annuities and insurance products. His work is also in line with conclusions drawn in Cowan, Howell and Power (2002) and Carow and Kane (2002). In essence, the above results provide some support for the theory of contestable markets (Baumol, 1982), according to which, the removal of regulatory hedges can reduce the long-term revenues of incumbent firms in the industry, given the increased competition by new entrants. This can be accompanied by the fact that banks may have much lower selling costs than insurers (Felgran, 1985; Todd and Murray, 1988).

To sum up, the differences in the empirical findings could be attributed to a number of reasons – not directly testable in the present analysis. One could argue that bank shareholders view the bank-insurance interface as a means of increasing revenues through a low cost operation; or possibly aiming to extend the deposit-security frame to annuities that closely resemble banking products such as mortgages. On the other hand, insurers may be concerned about the bank's powerful low cost operation and vast network which could possibly take insurers out of the market. In essence, these fears are related to the notion that bancassurance could inject more competition into the insurance business and thus divert premium cash flows to banks.

In addition, banks have always enjoyed a stronger brand name, while to a large extent consumers have not yet developed the "trust relationship" with the insurance industry. This is evident if one contrasts the cautiousness of consumers when it comes to insurance and sales of related products versus their more relaxed attitude when it comes to purchasing banking services. In sum, the above could provide support to the negative correlation between the banks and insurers' stock returns at the time of the bank-insurance announcements.

4.4.1. BANK-INSURANCE AGENCY COMBINATIONS

A closer look at the extant body of research on the bank-insurance interface reveals fundamental differences in the risk-return profiles of banks when the latter combine with insurance agencies/brokers (Boyd, Graham and Hewitt, 1993; Nurullah and Staikouras, 2008). Specifically, while the first study obtains mixed results with regards to the risk-return profiles of banks when they merge with agencies/brokers versus insurance underwriters, the second suggests that the most suitable candidate for the bancassurance entity is insurance brokerage, because it offers the most attractive risk-return profile. Within a theoretical framework, Felgran (1985) argues that insurance brokerage is attractive for banks since it is complementary to banking products, requires low investment and carries low risk as it generates fee income. On the other hand, he suggests insurance underwriting is not attractive to banks, because it has a high risk/low return profile, is capital intensive and there are few linkages between underwriting and banking services. Despite these dissimilarities, the existing body of event studies on bancassurance does not differentiate between deals where the bank is targeting an insurance underwriter – thus becoming exposed to underwriting risks – and deals where the bank is targeting an insurance broker/agent, where underwriting risk is not applicable. Given that the market is expected to react differently to combinations offering distinct risk-return structures, aggregating excess returns from both types of bank-insurance deals could yield conflicting, if not, problematic results. In order to overcome this issue, the current study isolates combinations of banks and insurance brokers/agents. The results are presented in Table 4.5.

Table 4.5. Bank - Insurance agencies/brokers deals

		Bank Bidder - Ins Agency Target			
		Excess Returns via		*Excess Returns via*	
Event Period		*Market Index*		*Industry Index*	
(-1, 0)	(0, +1)	-0.05%	-0.39%	0.10%	-0.20%
		-(0.20)	-(1.55)	(0.44)	-(0.85)
(-2, 0)	(0, +2)	-0.08%	-0.36%	0.12%	-0.25%
		-(0.25)	-(1.17)	(0.43)	-(0.86)
(-3, 0)	(0, +3)	-0.07%	-0.57%	0.01%	-0.47%
		-(0.19)	-(1.59)	(0.02)	-(1.43)
(-4, 0)	(0, +4)	0.12%	-0.22%	0.32%	-0.27%
		(0.29)	-(0.55)	(0.87)	-(0.73)
(-5, 0)	(0, +5)	0.23%	-0.60%	0.43%	-0.66%
		(0.54)	-(1.38)	(1.06)	-(1.63)
(-10, 0)	(0,+10)	-0.07%	-0.60%	0.36%	-0.68%
		-(0.12)	-(1.02)	(0.66)	-(1.25)
(-20, 0)	(0,+20)	-0.23%	0.04%	0.01%	0.18%
		-(0.28)	(0.05)	(0.02)	(0.23)
Event Period					
(0, 0)	(-1, +1)	-0.23%	-0.21%	-0.08%	-0.02%
		-(1.28)	-(0.69)	-(0.49)	-(0.05)
(-2,+1)	(-2, +2)	-0.24%	-0.21%	0.01%	-0.04%
		-(0.68)	-(0.53)	(0.02)	-(0.12)
(-3,+1)	(-3, +3)	-0.23%	-0.41%	-0.11%	-0.38%
		-(0.58)	-(0.86)	-(0.30)	-(0.88)
(-4,+1)	(-4, +4)	-0.05%	0.12%	0.20%	0.13%
		-(0.11)	(0.23)	(0.50)	(0.27)
(-5,+1)	(-5, +5)	0.07%	-0.14%	0.31%	-0.15%
		(0.15)	-(0.24)	(0.71)	-(0.28)
(-10,+1)	(-10, +10)	-0.23%	-0.44%	0.24%	-0.24%
		-(0.38)	-(0.54)	(0.43)	-(0.32)
(-20,+1)	(-20, +20)	-0.39%	0.04%	-0.10%	0.27%
		-(0.47)	(0.03)	-(0.13)	(0.26)

The sample here consists of 90 banks bidding for insurance agencies. The sample period is 1990-2006. After adjusting for multiple bids* the sample size drops to 87 bank to insurance agencies deals. The reported values are cumulative average abnormal returns for the international sample of these announcements. The event windows are presented under the first two columns and excess returns are reported in that order under each of the subsequent two headings. Abnormal returns are calculated using standard event study methodology with a two-factor variant of the market model – where statistically necessary. As a proxy for market risk, the general market index and sector specific index are employed separately. The figures in brackets indicate t-values.

*Multiple bids arise when institutions announce the acquisition of more than one target on a given day. To avoid double/triple counting the same effect we treat these cases as one when averaging out the ARs and CARs.

a/b/c denote significant CAAR at the 0.02/0.05/0.10 level (two-tailed test) for the pertinent event period.

The results presented in Table 4.5 clearly show that the cumulative average excess returns experienced by bank bidders are negative and insignificant throughout the event period. The positive but insignificant CAARs drawn from the model that incorporates industry indices are the only exception with respect to the direction of excess returns. Nevertheless, the latter difference may well be related to events that affected the market as a whole, but not the particular sector in any significant way and vice versa.

The insignificance of the results in Table 4.5 points to two considerable conclusions. First, the analysis here verifies previous concerns with respect to the differences in the risk-return profiles of banks when the latter merge with insurance

underwriters versus agencies/brokers. This is especially apparent when one contrasts the results in Table 4.5 with those presented in previous tables. Second, in contrast to the prior literature that generally favours insurance brokerage as an addition to the traditional banking business, the findings for this sample of 90 deals point to the opposite direction. The market is found to ignore bank-insurance agency/brokerage combinations around the time of their announcement. In essence, banks that bid for insurance agencies neither create nor destroy shareholder value. This outcome might be related to the low risk-return nature of the insurance brokerage/agency business or, as Broome and Markham (2000) suggest, be associated with concerns involving a) customer confusion regarding insurance products, b) conflicts of interest for the bank who acts both as a disinterested investment counsellor and as an insurance sales outlet and finally c) bank coercion, if loan applicants are indirectly forced into buying insurance products.

4.4.2. Bank-Insurance Interface and Sample Characteristics

Having analysed the overall market reaction around bank-insurance announcements, this section sets out to explore whether various deal characteristics such as: a) their classification as domestic or cross-border, b) their size, c) their status as U.S. or non-U.S. and finally, d) the geographic location of the bidder, play a significant role in the subsequent valuation of the deal by the market. In other words, the study moves on to test for the existence and magnitude of excess returns, associated with the aforementioned attributes. This is accomplished by dividing the sample into the categories mentioned above and then calculating the respective average abnormal returns (AARs) and cumulative average abnormal returns (CAARs).

4.4.2.1. Geographic Overlap

Evidence on the effects of geographic diversification in banking is available since the 1990s (Berger and Humphrey, 1994; Siems, 1996), showing an increase in efficiency and higher returns associated with overlaps in the branch networks of merging banks. In terms of returns to stockholders, Beitel, Schiereck and Wahrenburg (2004) and DeLong (2001) find that geographically focusing mergers perform better than diversifying ones. In a more general framework, Deng and Elyasiani (2008)

show, among others, that geographic diversification is associated with a significant value premium and a reduction in total risk. Considering the empirical evidence in banking, this section sets out to explore whether the extent of geographic overlap of the merging entities is of significance with respect to the subsequent market reaction to the bank-insurance announcement(s). Table 4.6 presents the results of the split sample on the basis of deals being either domestic or cross-border.

Table 4.6. Cross-border vs. domestic (all deals)

		Cross Border				*Domestic*			
		Excess Returns via Market Index		*Excess Returns via Industry Index*		*Excess Returns via Market Index*		*Excess Returns via Industry Index*	
Event Period									
(-1, 0)	(0, +1)	0.65%	0.61%	0.56%	0.82%	0.81%	0.65%	0.58%	0.42%
		(1.56)	(1.46)	(1.50)	(2.19) [b]	(3.54) [a]	(2.84) [a]	(2.87) [a]	(2.08) [b]
(-2, 0)	(0, +2)	0.41%	0.53%	0.02%	0.69%	0.60%	0.15%	0.43%	-0.22%
		(0.81)	(1.05)	(0.04)	(1.50)	(2.15) [b]	(0.53)	(1.74) [c]	-(0.89)
(-3, 0)	(0, +3)	0.07%	0.57%	-0.23%	0.39%	0.54%	0.34%	0.36%	-0.08%
		(0.12)	(0.96)	-(0.44)	(0.75)	(1.67) [c]	(1.04)	(1.25)	-(0.28)
(-4, 0)	(0, +4)	-0.03%	0.10%	0.02%	0.12%	0.44%	0.49%	0.25%	0.17%
		-(0.04)	(0.16)	(0.03)	(0.21)	(1.21)	(1.36)	(0.77)	(0.53)
(-5, 0)	(0, +5)	-0.31%	-0.69%	0.21%	-0.44%	0.22%	0.42%	0.00%	0.11%
		-(0.43)	-(0.96)	(0.32)	-(0.69)	(0.55)	(1.07)	(0.01)	(0.30)
(-10, 0)	(0,+10)	0.11%	0.18%	-0.40%	0.37%	0.09%	0.45%	-0.04%	0.26%
		(0.11)	(0.19)	-(0.46)	(0.42)	(0.16)	(0.85)	-(0.08)	(0.54)
(-20, 0)	(0,+20)	0.33%	0.71%	-0.99%	1.73%	0.19%	0.22%	0.04%	0.25%
		(0.24)	(0.53)	-(0.82)	(1.44)	(0.26)	(0.30)	(0.06)	(0.38)
Event Period									
(0, 0)	(-1, +1)	0.55%	0.71%	0.66%	0.71%	0.73%	0.73%	0.54%	0.47%
		(1.87) [c]	(1.39)	(2.52) [a]	(1.55)	(4.50) [a]	(2.61) [a]	(3.73) [a]	(1.89) [c]
(-2,+1)	(-2, +2)	0.47%	0.40%	0.17%	0.04%	0.52%	0.02%	0.32%	-0.32%
		(0.79)	(0.60)	(0.33)	(0.07)	(1.62)	(0.06)	(1.12)	-(1.01)
(-3,+1)	(-3, +3)	0.13%	0.08%	-0.08%	-0.50%	0.46%	0.15%	0.25%	-0.26%
		(0.19)	(0.11)	-(0.13)	-(0.72)	(1.28)	(0.35)	(0.77)	-(0.67)
(-4,+1)	(-4, +4)	0.03%	-0.48%	0.17%	-0.52%	0.36%	0.20%	0.14%	-0.12%
		(0.04)	-(0.54)	(0.26)	-(0.66)	(0.90)	(0.41)	(0.39)	-(0.27)
(-5,+1)	(-5, +5)	-0.25%	-1.55%	0.36%	-0.90%	0.14%	-0.09%	-0.11%	-0.42%
		-(0.32)	-(1.59)	(0.52)	-(1.03)	(0.33)	-(0.16)	-(0.28)	-(0.89)
(-10,+1)	(-10, +10)	0.16%	-0.26%	-0.25%	-0.70%	0.01%	-0.19%	-0.15%	-0.31%
		(0.16)	-(0.19)	-(0.28)	-(0.58)	(0.02)	-(0.25)	-(0.30)	-(0.47)
(-20,+1)	(-20, +20)	0.39%	0.49%	-0.84%	0.08%	0.11%	-0.32%	-0.07%	-0.25%
		(0.28)	(0.26)	-(0.68)	(0.04)	(0.15)	-(0.31)	-(0.10)	-(0.27)

The sample here consists of 24 cross border bancassurance deals and 96 domestic bancassurance deals announced between 1990 and 2006, excluding deals where the targets are insurance agencies. After adjusting for multiple bids* the sample size drops to 23 (14 bank bidders and 9 insurance bidders) cross border deals and 90 (80 bank bidders and 10 insurance bidders) domestic deals. The reported values are cumulative average abnormal returns for the international sample of these announcements. The event windows are presented under the first two columns and excess returns are reported in that order under each of the subsequent four headings. Abnormal returns are calculated using standard event study methodology with a two-factor variant of the market model – where statistically necessary. As a proxy for market risk, the general market index and sector specific index are employed separately. The figures in brackets indicate t-values.

* Multiple bids arise when institutions announce the acquisition of more than one target on a given day. To avoid multiple counting of the same effect we treat these cases as one when averaging out the ARs and CARs.

a/b/c denote significant CAAR at the 0.02/0.05/0.10 level (two-tailed test) for the pertinent event period.

The results presented in Table 4.6 verify that deals where the bidder and target come from the same geographic background are superior (when statistically significant) to cross-border deals. Specifically, the excess returns of the cross-border

deals for the period leading to and post the announcement day(s) are positive but insignificant, whereas the cumulative excess returns of the domestic deals ranging from the [-1 0] up to the [-3 0] event windows as well as the post event [0 +1] CAAR, are higher and statistically significant. It is worth noting that on the announcement day(s) [0 0], cross border deals experience a positive and significant excess return of 0.55%, yet this is still lower than the excess return experienced by domestic deals which takes a value of 0.73%.

Given the previous finding of different market reactions according to the bidder's nature of business (banking/insurance), the study delves into the market reaction of cross-border versus domestic deals for bank and insurance bidders respectively. The results are presented in Table 4.7 and Table 4.8.

Table 4.7. Cross-border vs. domestic deals (bank bidders)

		Cross Border				*Domestic*			
		Excess Returns via Market Index		*Excess Returns via Industry Index*		*Excess Returns via Market Index*		*Excess Returns via Industry Index*	
Event Period									
(-1, 0)	(0, +1)	0.20%	0.31%	0.11%	0.88%	0.93%	0.97%	0.72%	0.65%
		(0.37)	(0.57)	(0.22)	(1.87) [c]	(3.99) [a]	(4.16) [a]	(3.36) [a]	(3.01) [a]
(-2, 0)	(0, +2)	0.14%	0.07%	-0.20%	0.47%	0.66%	0.36%	0.52%	-0.11%
		(0.22)	(0.11)	-(0.35)	(0.82)	(2.30) [b]	(1.24)	(1.97) [b]	-(0.41)
(-3, 0)	(0, +3)	-0.41%	0.18%	-0.32%	0.35%	0.61%	0.57%	0.43%	0.05%
		-(0.54)	(0.23)	-(0.48)	(0.53)	(1.84) [c]	(1.73) [c]	(1.40)	(0.15)
(-4, 0)	(0, +4)	-0.50%	-0.34%	-0.03%	0.17%	0.56%	0.81%	0.35%	0.33%
		-(0.58)	-(0.39)	-(0.04)	(0.23)	(1.51)	(2.21) [b]	(1.04)	(0.97)
(-5, 0)	(0, +5)	-0.88%	-0.85%	0.04%	-0.04%	0.28%	0.71%	0.08%	0.25%
		-(0.95)	-(0.91)	(0.04)	-(0.05)	(0.69)	(1.77) [c]	(0.21)	(0.66)
(-10, 0)	(0,+10)	-0.31%	-0.29%	-0.55%	0.65%	0.16%	0.66%	-0.04%	0.26%
		-(0.24)	-(0.23)	-(0.50)	(0.59)	(0.30)	(1.21)	-(0.08)	(0.52)
(-20, 0)	(0,+20)	-1.19%	-0.21%	-1.40%	1.50%	0.02%	0.59%	-0.31%	0.36%
		-(0.68)	-(0.12)	-(0.92)	(0.98)	(0.03)	(0.78)	-(0.44)	(0.52)
Event Period									
(0, 0)	(-1, +1)	0.36%	0.15%	0.54%	0.45%	0.90%	1.00%	0.66%	0.70%
		(0.93)	(0.23)	(1.61)	(0.78)	(5.44) [a]	(3.52) [a]	(4.37) [a]	(2.68) [a]
(-2,+1)	(-2, +2)	0.10%	-0.14%	0.14%	-0.27%	0.73%	0.11%	0.50%	-0.25%
		(0.13)	-(0.16)	(0.21)	-(0.36)	(2.21) [b]	(0.31)	(1.65) [c]	-(0.74)
(-3,+1)	(-3, +3)	-0.46%	-0.59%	0.02%	-0.51%	0.68%	0.28%	0.41%	-0.19%
		-(0.54)	-(0.58)	(0.03)	-(0.57)	(1.85) [c]	(0.65)	(1.21)	-(0.48)
(-4,+1)	(-4, +4)	-0.55%	-1.19%	0.31%	-0.40%	0.63%	0.47%	0.34%	0.02%
		-(0.58)	-(1.04)	(0.38)	-(0.40)	(1.56)	(0.96)	(0.91)	(0.04)
(-5,+1)	(-5, +5)	-0.93%	-2.09%	0.38%	-0.54%	0.35%	0.10%	0.06%	-0.34%
		-(0.92)	-(1.65) [c]	(0.43)	-(0.49)	(0.81)	(0.18)	(0.15)	-(0.67)
(-10,+1)	(-10, +10)	-0.35%	-0.95%	-0.20%	-0.43%	0.24%	-0.07%	-0.06%	-0.44%
		-(0.27)	-(0.54)	-(0.18)	-(0.28)	(0.42)	-(0.09)	-(0.10)	-(0.63)
(-20,+1)	(-20, +20)	-1.24%	-1.76%	-1.06%	-0.45%	0.10%	-0.28%	-0.32%	-0.61%
		-(0.69)	-(0.72)	-(0.68)	-(0.21)	(0.12)	-(0.27)	-(0.46)	-(0.62)

The sample here consists of 15 cross border bancassurance deals and 85 domestic bancassurance deals where the bidder is a bank and the target an insurance firm, excluding deals where the targets are insurance agencies. The sample period is 1990-2006. After adjusting for multiple bids* the sample size drops to 14 cross border deals and 80 domestic deals. The reported values are cumulative average abnormal returns for the international sample of these announcements. The event windows are presented under the first two columns and excess returns are reported in that order under each of the subsequent four headings. Abnormal returns are calculated using standard event study methodology with a two-factor variant of the market model – where statistically necessary. As a proxy for market risk, the general market index and sector specific index are employed separately. The figures in brackets indicate t-values.

*Multiple bids arise when institutions announce the acquisition of more than one target on a given day. To avoid double/triple counting the same effect we treat these cases as one when averaging out the ARs and CARs.

a/b/c denote significant CAAR at the 0.02/0.05/0.10 level (two-tailed test) for the pertinent event period.

Table 4.8. Cross-border vs. domestic deals (insurance bidders)

Insurance Bidders									
		Cross Border				*Domestic*			
		Excess Returns via		*Excess Returns via*		*Excess Returns via*		*Excess Returns via*	
Event Period		*Market Index*		*Industry Index*		*Market Index*		*Industry Index*	
(-1, 0)	(0, +1)	0.56%	0.77%	1.13%	0.78%	0.03%	-1.87%	-0.51%	-1.36%
		(1.00)	(1.37)	(1.84) [c]	(1.27)	(0.04)	-(2.38) [a]	-(0.84)	-(2.22) [b]
(-2, 0)	(0, +2)	0.04%	0.94%	0.28%	1.12%	0.26%	-1.54%	-0.23%	-1.14%
		(0.06)	(1.37)	(0.37)	(1.49)	(0.27)	-(1.59)	-(0.31)	-(1.52)
(-3, 0)	(0, +3)	0.04%	1.00%	-0.32%	0.62%	0.19%	-1.65%	-0.16%	-1.09%
		(0.05)	(1.27)	-(0.36)	(0.72)	(0.17)	-(1.47)	-(0.19)	-(1.26)
(-4, 0)	(0, +4)	-0.05%	0.48%	-0.12%	0.06%	-0.33%	-2.06%	-0.59%	-1.11%
		-(0.05)	(0.55)	-(0.12)	(0.06)	-(0.27)	-(1.65) [c]	-(0.61)	-(1.14)
(-5, 0)	(0, +5)	-0.05%	-0.59%	0.29%	-1.03%	-0.07%	-1.96%	-0.58%	-1.00%
		-(0.06)	-(0.61)	(0.27)	-(0.97)	-(0.05)	-(1.44)	-(0.55)	-(0.95)
(-10, 0)	(0,+10)	-0.17%	1.21%	-0.43%	0.31%	-0.33%	-1.52%	-0.02%	0.24%
		-(0.13)	(0.93)	-(0.30)	(0.21)	-(0.18)	-(0.82)	-(0.01)	(0.17)
(-20, 0)	(0,+20)	0.63%	2.43%	-1.12%	2.66%	2.15%	-3.06%	2.84%	-0.68%
		(0.35)	(1.34)	-(0.56)	(1.33)	(0.84)	-(1.20)	(1.43)	-(0.35)
Event Period									
(0, 0)	(-1, +1)	0.39%	0.93%	0.76%	1.15%	-0.45%	-1.39%	-0.47%	-1.40%
		(0.99)	(1.37)	(1.74) [c]	(1.53)	-(0.80)	-(1.44)	-(1.09)	-(1.86) [c]
(-2,+1)	(-2, +2)	0.42%	0.59%	0.30%	0.64%	-1.17%	-0.83%	-1.12%	-0.90%
		(0.53)	(0.67)	(0.34)	(0.66)	-(1.05)	-(0.66)	-(1.29)	-(0.93)
(-3,+1)	(-3, +3)	0.41%	0.65%	-0.29%	-0.45%	-1.24%	-1.01%	-1.05%	-0.78%
		(0.47)	(0.62)	-(0.30)	-(0.39)	-(0.99)	-(0.68)	-(1.08)	-(0.68)
(-4,+1)	(-4, +4)	0.33%	0.05%	-0.10%	-0.82%	-1.76%	-1.95%	-1.47%	-1.22%
		(0.34)	(0.04)	-(0.09)	-(0.63)	-(1.29)	-(1.16)	-(1.39)	-(0.94)
(-5,+1)	(-5, +5)	0.32%	-1.03%	0.31%	-1.50%	-1.50%	-1.59%	-1.47%	-1.11%
		(0.31)	-(0.79)	(0.27)	-(1.04)	-(1.01)	-(0.86)	-(1.28)	-(0.78)
(-10,+1)	(-10, +10)	0.21%	0.66%	-0.41%	-0.88%	-1.76%	-1.41%	-0.90%	0.70%
		(0.15)	(0.36)	-(0.27)	-(0.44)	-(0.91)	-(0.55)	-(0.60)	(0.35)
(-20,+1)	(-20, +20)	1.00%	2.66%	-1.10%	0.78%	0.72%	-0.47%	1.95%	2.63%
		(0.54)	(1.05)	-(0.54)	(0.28)	(0.27)	-(0.13)	(0.96)	(0.95)

The sample here consists of 9 cross border bancassurance deals and 11 non-cross border bancassurance deals, where the bidders are insurance companies and the targets banks. The sample period is 1990-2006. After adjusting for multiple bids* the sample size drops to 9 cross border deals and 10 non-cross border deals. The reported values are cumulative average abnormal returns. The event windows are presented under the first two columns and excess returns are reported in that order under each of the subsequent four headings. Abnormal returns are calculated using standard event study methodology with a two-factor variant of the market model – where statistically necessary. As a proxy for market risk, the general market index and sector specific index are employed separately. The figures in brackets indicate t-values.

*Multiple bids arise when institutions announce the acquisition of more than one target on a given day. To avoid double/triple counting the same effect we treat these cases as one when averaging out the ARs and CARs.

a/b/c denote significant CAAR at the 0.02/0.05/0.10 level (two-tailed test) for the pertinent event period.

When the decomposition of bank bids for insurance companies into domestic versus cross-border is compared with the respective decomposition for the whole sample, the price adjustment is comparable, but at the same time stronger. Nevertheless, when the focus is shifted to the analogous excess returns experienced by the insurance bidders, these are in the opposite direction. In contrast with previous results, cross border deals where the bidder is an insurance company, generally experience positive excess returns, with the [0 +1] and [-1 +1] CAARs being 1.13% and 0.76% as well as statistically significant. On the other hand, analogous domestic deals where the insurance companies take the lead, exhibit negative excess returns

throughout the event period. Comparing the results in Table 4.8 with the results presented in Table 4.4 we conclude that the negative reaction of the market towards insure-banking deal announcements is mainly due to the domestic part of this sample. However, due to the small sample of assurebanking deals, one should be cautious before making any generalisations.

In summary, the results with regards to the effects of geographic overlap in bancassurance deals are generally consistent with the event study literature in banking and financial institutions (Cybo-Ottone and Murgia, 2000; DeLong, 2001). It seems that the market attaches value to the synergies-efficiencies derived from larger market overlap and/or increases in market share and concentration. Furthermore, domestic deals may be easier to implement than cross border deals, which often suffer from difficulties created by the different legal and tax systems, language barriers and organizational cultures of the two entities. On the other hand, the above results are in contrast with event studies on bancassurance, where domestic deals are found to be associated with lower excess returns (Fields, Fraser and Kolari, 2007a; b) or with negative excess returns (Chen, Li, Moshirian and Tan, 2007). Two possible explanations for the divergence between the results reported here and the results reported in these studies could be sample differences and/or the fact that the above studies do not distinguish between bank bids for insurance underwriters and bank bids for insurance agencies.

4.4.2.2. DEAL SIZE

In addition to the geographic location, another factor that could play an important role in the market valuations of bancassurance deals could be the size of the deal. Large deals often receive higher publicity and are followed by many analysts due to their impact on investment banks' portfolios as well as on the financial sector and the wider economy. The size of the deal could also act as an indicator of the higher synergies via scale economies that are likely to be achieved via the combination of the two institutions. The results are presented in Table 4.9.

Table 4.9. Large deals vs small deals

		Large Deals				*Small Deals*			
		Excess Returns via		*Excess Returns via*		*Excess Returns via*		*Excess Returns via*	
Event Period		*Market Index*		*Industry Index*		*Market Index*		*Industry Index*	
(-1, 0)	(0, +1)	1.79%	1.55%	1.28%	1.23%	0.91%	0.35%	0.82%	0.34%
		(5.26) [a]	(4.55) [a]	(4.49) [a]	(4.31) [a]	(2.12) [b]	(0.82)	(2.14) [b]	(0.90)
(-2, 0)	(0, +2)	1.85%	1.04%	1.23%	0.70%	0.94%	-0.74%	0.85%	-1.05%
		(4.44) [a]	(2.50) [a]	(3.53) [a]	(2.00) [b]	(1.78) [c]	-(1.41)	(1.83) [c]	-(2.26) [b]
(-3, 0)	(0, +3)	1.36%	1.35%	0.85%	0.76%	1.11%	-0.91%	1.04%	-1.09%
		(2.82) [a]	(2.80) [a]	(2.11) [b]	(1.87) [c]	(1.84) [c]	-(1.50)	(1.93) [c]	-(2.03) [b]
(-4, 0)	(0, +4)	1.01%	1.04%	0.70%	0.64%	1.04%	-0.88%	0.89%	-0.94%
		(1.87) [c]	(1.94) [c]	(1.55)	(1.42)	(1.53)	-(1.29)	(1.47)	-(1.56)
(-5, 0)	(0, +5)	0.92%	1.11%	0.84%	0.90%	0.54%	-1.08%	0.41%	-0.99%
		(1.56)	(1.89) [c]	(1.71) [c]	(1.82) [c]	(0.73)	-(1.46)	(0.63)	-(1.50)
(-10, 0)	(0,+10)	1.04%	1.22%	0.38%	1.39%	0.41%	-1.13%	0.44%	-0.88%
		(1.30)	(1.53)	(0.57)	(2.08) [b]	(0.41)	-(1.12)	(0.50)	-(0.98)
(-20, 0)	(0,+20)	1.87%	0.58%	0.51%	0.97%	0.97%	-0.70%	0.71%	0.14%
		(1.69) [c]	(0.53)	(0.55)	(1.05)	(0.69)	-(0.51)	(0.58)	(0.12)
Event Period									
(0, 0)	(-1, +1)	1.49%	1.85%	1.17%	1.34%	0.63%	0.63%	0.57%	0.59%
		(6.18) [a]	(4.44) [a]	(5.80) [a]	(3.83) [a]	(2.08) [b]	(1.19)	(2.11) [b]	(1.26)
(-2,+1)	(-2, +2)	1.91%	1.40%	1.29%	0.76%	0.65%	-0.43%	0.62%	-0.77%
		(3.97) [a]	(2.61) [a]	(3.21) [a]	(1.70) [c]	(1.08)	-(0.64)	(1.16)	-(1.28)
(-3,+1)	(-3, +3)	1.42%	1.22%	0.91%	0.44%	0.83%	-0.43%	0.81%	-0.63%
		(2.63) [a]	(1.91) [c]	(2.02) [b]	(0.82)	(1.23)	-(0.53)	(1.34)	-(0.88)
(-4,+1)	(-4, +4)	1.07%	0.56%	0.76%	0.17%	0.76%	-0.47%	0.66%	-0.62%
		(1.81) [c]	(0.78)	(1.54)	(0.28)	(1.02)	-(0.52)	(1.00)	-(0.77)
(-5,+1)	(-5, +5)	0.98%	0.54%	0.90%	0.58%	0.26%	-1.17%	0.19%	-1.14%
		(1.54)	(0.68)	(1.69) [c]	(0.86)	(0.33)	-(1.17)	(0.26)	-(1.28)
(-10,+1)	(-10, +10)	1.10%	0.77%	0.44%	0.61%	0.13%	-1.35%	0.22%	-1.00%
		(1.32)	(0.70)	(0.63)	(0.66)	(0.12)	-(0.97)	(0.23)	-(0.81)
(-20,+1)	(-20, +20)	1.93%	0.96%	0.57%	0.31%	0.68%	-0.37%	0.49%	0.29%
		(1.71) [c]	(0.62)	(0.60)	(0.24)	(0.48)	-(0.19)	(0.39)	(0.17)

The sample here consists of 35 large bancassurance deals ($ value > 203.20 mil*.), and 35 small bancassurance deals ($ value < 203.20 mil*.), excluding deals where the targets are insurance agencies and deals where the terms (including deal $size) were not disclosed. The sample period is 1990-2006. The reported values are cumulative average abnormal returns for the international sample of these announcements. The event windows are presented under the first two columns and excess returns are reported in that order under each of the subsequent four headings. Abnormal returns are calculated using standard event study methodology with a two-factor variant of the market model – where statistically necessary. As a proxy for market risk, the general market index and sector specific index are employed separately. The figures in brackets indicate t-values.

* This is the median $ value of this sample.

a/b/c denote significant CAAR at the 0.02/0.05/0.10 level (two-tailed test) for the pertinent event period.

The decomposition of the sample of deals based on their median size confirms the importance of this factor in the subsequent bidder valuation by the market. Looking at large deals, the positive and significant excess returns dominate most combinations within the 11-day [-5 +5] window, with the only exception being the 9-day and 11-day symmetric windows. Moreover, the AAR on the announcement day(s) is 1.49% and significant. On the other hand, small deals exhibit a positive but smaller price adjustment that is confined to the pre-event period and extends from the 2-day [-1 0] window up to the 4-day [-3 0] window. Even though there is a positive and significant excess return of 0.63% on the announcement day(s), the CAARs on the subsequent days dissipate, becoming negative but insignificant. Furthermore, the study delves

into the market reaction of large versus small deals for bank and insurance bidders respectively. The results are presented in Table 4.10 and Table 4.11.

Table 4.10. Large deals vs small deals (bank bidders)

Bank bidders									
		Large Deals				*Small Deals*			
		Excess Returns via Market Index		*Excess Returns via Industry Index*		*Excess Returns via Market Index*		*Excess Returns via Industry Index*	
Event Period									
(-1, 0)	(0, +1)	2.14%	2.31%	1.41%	1.64%	1.31%	0.66%	1.22%	0.60%
		(5.40) [a]	(5.82) [a]	(4.31) [a]	(5.03) [a]	(2.86) [a]	(1.44)	(2.82) [a]	(1.39)
(-2, 0)	(0, +2)	2.10%	1.69%	1.28%	1.11%	1.27%	-0.89%	1.19%	-1.36%
		(4.32) [a]	(3.47) [a]	(3.19) [a]	(2.78) [a]	(2.26) [b]	-(1.59)	(2.25) [b]	-(2.57) [a]
(-3, 0)	(0, +3)	1.47%	1.99%	0.92%	1.23%	1.54%	-0.98%	1.38%	-1.36%
		(2.62) [a]	(3.55) [a]	(2.00) [b]	(2.67) [a]	(2.38) [a]	-(1.51)	(2.26) [b]	-(2.23) [b]
(-4, 0)	(0, +4)	1.02%	1.74%	0.67%	1.10%	1.61%	-0.88%	1.31%	-1.16%
		(1.63)	(2.77) [a]	(1.30)	(2.13) [b]	(2.22) [b]	-(1.22)	(1.91) [c]	-(1.69) [c]
(-5, 0)	(0, +5)	0.90%	1.83%	0.82%	1.37%	0.88%	-1.07%	0.69%	-1.11%
		(1.31)	(2.66) [a]	(1.44)	(2.42) [a]	(1.11)	-(1.35)	(0.93)	-(1.48)
(-10, 0)	(0,+10)	0.89%	1.44%	0.27%	1.34%	0.83%	-1.01%	0.59%	-1.01%
		(0.96)	(1.54)	(0.35)	(1.75) [c]	(0.77)	-(0.94)	(0.58)	-(1.00)
(-20, 0)	(0,+20)	1.44%	0.12%	0.23%	0.35%	0.87%	0.40%	0.22%	0.68%
		(1.12)	(0.10)	(0.22)	(0.33)	(0.59)	(0.27)	(0.16)	(0.49)
Event Period									
(0, 0)	(-1, +1)	1.85%	2.60%	1.26%	1.79%	0.94%	1.02%	0.88%	0.94%
		(6.60) [a]	(5.36) [a]	(5.46) [a]	(4.48) [a]	(2.91) [a]	(1.82) [c]	(2.87) [a]	(1.78) [c]
(-2,+1)	(-2, +2)	2.56%	1.93%	1.66%	1.13%	0.98%	-0.57%	0.91%	-1.05%
		(4.56) [a]	(3.08) [a]	(3.60) [a]	(2.19) [b]	(1.52)	-(0.79)	(1.49)	-(1.53)
(-3,+1)	(-3, +3)	1.93%	1.61%	1.31%	0.89%	1.25%	-0.38%	1.11%	-0.86%
		(3.07) [a]	(2.16) [b]	(2.53) [a]	(1.46)	(1.73) [c]	-(0.45)	(1.62)	-(1.06)
(-4,+1)	(-4, +4)	1.48%	0.90%	1.06%	0.51%	1.32%	-0.22%	1.03%	-0.73%
		(2.15) [b]	(1.07)	(1.86) [c]	(0.74)	(1.67) [c]	-(0.22)	(1.38)	-(0.79)
(-5,+1)	(-5, +5)	1.36%	0.88%	1.20%	0.92%	0.60%	-1.13%	0.42%	-1.29%
		(1.83) [c]	(0.94)	(1.97) [b]	(1.21)	(0.70)	-(1.05)	(0.52)	-(1.28)
(-10,+1)	(-10, +10)	1.35%	0.47%	0.65%	0.35%	0.55%	-1.12%	0.31%	-1.31%
		(1.39)	(0.37)	(0.82)	(0.33)	(0.49)	-(0.75)	(0.29)	-(0.93)
(-20,+1)	(-20, +20)	1.90%	-0.29%	0.61%	-0.68%	0.58%	0.33%	-0.05%	0.03%
		(1.44)	-(0.16)	(0.56)	-(0.46)	(0.38)	(0.16)	-(0.04)	(0.01)

The sample here consists of 27 large bancassurance deals ($ value > 195.00 mil*.), and 27 small bancassurance deals ($ value < 195.00 mil*.) where the bidder is a bank and the target an insurance company, excluding deals where the targets are insurance agencies and deals where the terms (including deal $size) were not disclosed. The sample period is 1990-2006. The reported values are cumulative average abnormal returns for the international sample of these announcements. The event windows are presented under the first two columns and excess returns are reported in that order under each of the subsequent four headings. Abnormal returns are calculated using standard event study methodology with a two-factor variant of the market model – where statistically necessary. As a proxy for market risk, the general market index and sector specific index are employed separately. The figures in brackets indicate t-values.

* This is the median $ value of this sample.

a/b/c denote significant CAAR at the 0.02/0.05/0.10 level (two-tailed test) for the pertinent event period.

Table 4.11. Large deals vs small deals (insurance bidders)

Insurance bidders

		Large Deals				*Small Deals*			
		Excess Returns via Market Index		*Excess Returns via Industry Index*		*Excess Returns via Market Index*		*Excess Returns via Industry Index*	
Event Period									
(-1, 0)	(0, +1)	0.55%	-1.26%	0.58%	-0.82%	-0.67%	-1.57%	-0.67%	-1.01%
		(0.88)	-(2.00) [b]	(1.03)	-(1.45)	-(0.67)	-(1.57)	-(0.83)	-(1.25)
(-2, 0)	(0, +2)	0.52%	-1.26%	0.51%	-1.29%	-0.17%	-0.98%	-0.33%	-0.42%
		(0.68)	-(1.64)	(0.74)	-(1.86) [c]	-(0.14)	-(0.80)	-(0.33)	-(0.42)
(-3, 0)	(0, +3)	0.22%	-1.13%	-0.21%	-1.61%	-0.38%	-1.08%	-0.22%	-0.27%
		(0.25)	-(1.27)	-(0.26)	-(2.01) [b]	-(0.27)	-(0.76)	-(0.19)	-(0.23)
(-4, 0)	(0, +4)	0.28%	-1.45%	0.01%	-1.44%	-1.04%	-1.08%	-0.59%	-0.21%
		(0.28)	-(1.46)	(0.01)	-(1.61)	-(0.66)	-(0.68)	-(0.46)	-(0.16)
(-5, 0)	(0, +5)	0.52%	-1.54%	0.25%	-1.27%	-0.91%	-1.46%	-0.56%	-0.70%
		(0.48)	-(1.42)	(0.25)	-(1.29)	-(0.52)	-(0.84)	-(0.40)	-(0.50)
(-10, 0)	(0,+10)	1.47%	-0.07%	0.33%	0.54%	-1.59%	-1.86%	-0.10%	-0.40%
		(1.00)	-(0.05)	(0.25)	(0.40)	-(0.68)	-(0.79)	-(0.05)	-(0.21)
(-20, 0)	(0,+20)	1.45%	0.05%	-0.16%	1.46%	1.79%	-3.59%	3.17%	-1.35%
		(0.71)	(0.02)	-(0.09)	(0.80)	(0.55)	-(1.10)	(1.21)	-(0.51)
Event Period									
(0, 0)	(-1, +1)	0.14%	-0.85%	0.55%	-0.78%	-0.47%	-1.77%	-0.35%	-1.33%
		(0.31)	-(1.10)	(1.37)	-(1.13)	-(0.66)	-(1.44)	-(0.61)	-(1.34)
(-2,+1)	(-2, +2)	-0.88%	-0.88%	-0.85%	-1.32%	-1.27%	-0.68%	-0.99%	-0.40%
		-(0.98)	-(0.88)	-(1.07)	-(1.48)	-(0.90)	-(0.43)	-(0.86)	-(0.31)
(-3,+1)	(-3, +3)	-1.18%	-1.05%	-1.58%	-2.37%	-1.48%	-0.99%	-0.88%	-0.13%
		-(1.18)	-(0.89)	-(1.76) [c]	-(2.24) [b]	-(0.93)	-(0.53)	-(0.69)	-(0.09)
(-4,+1)	(-4, +4)	-1.12%	-1.32%	-1.36%	-1.97%	-2.15%	-1.66%	-1.25%	-0.45%
		-(1.03)	-(0.98)	-(1.38)	-(1.64)	-(1.24)	-(0.78)	-(0.89)	-(0.26)
(-5,+1)	(-5, +5)	-0.88%	-1.16%	-1.12%	-1.57%	-2.02%	-1.91%	-1.22%	-0.91%
		-(0.74)	-(0.79)	-(1.05)	-(1.18)	-(1.07)	-(0.81)	-(0.81)	-(0.48)
(-10,+1)	(-10, +10)	0.07%	1.26%	-1.03%	0.32%	-2.70%	-2.99%	-0.76%	-0.15%
		(0.05)	(0.62)	-(0.75)	(0.17)	-(1.10)	-(0.92)	-(0.38)	-(0.06)
(-20,+1)	(-20, +20)	0.05%	1.36%	-1.53%	0.75%	0.68%	-1.34%	2.51%	2.17%
		(0.02)	(0.48)	-(0.81)	(0.29)	(0.20)	-(0.29)	(0.94)	(0.59)

The sample here consists of 8 large bancassurance deals ($ value > 304.10 mil*.), and 8 small bancassurance deals ($ value < 304.10 mil*.) where the bidders are insurance companies and the targets banks, excluding deals where the terms (including deal $size) were not disclosed. The sample period is 1990-2006. The reported values are cumulative average abnormal returns for the international sample of these announcements. The event windows are presented under the first two columns and excess returns are reported in that order under each of the subsequent four headings. Abnormal returns are calculated using standard event study methodology with a two-factor variant of the market model – where statistically necessary. As a proxy for market risk, the general market index and sector specific index are employed separately. The figures in brackets indicate t-values.

* This is the median $ value of this sample.

a/b/c denote significant CAAR at the 0.02/0.05/0.10 level (two-tailed test) for the pertinent event period.

When bank bidders are considered (Table 4.10), the results are analogous to those reported for the whole sample (Table 4.9), yet even stronger. On the contrary, when insurance bidders are examined, the results are reversed, with negative excess returns found across most of the event windows for large and small deals alike. A closer look reveals insignificant returns for the small deals in this sample. On the contrary, insurers that take the lead in large assurebanking partnerships experience a negative and significant excess return of -1.26% on the 2-day [0 +1] window.

The results clearly show that large deals are superior to small deals, and this reflects that the market possibly anticipates that large deals will lead to greater post-merger gains. Overall, the results are consistent with Fields, Fraser and Kolari (2007a; b), who find a positive relation between a proxy for scale economies (ratio of target size to bidder size) and excess returns. The latter are also in line with Chen, Li, Moshirian and Tan (2007) who find a positive relation between relative deal size and abnormal returns, while not in line with Cybo-Ottone and Murgia (2000) who fail to verify a relationship between excess returns and target size.

4.4.2.3. GEOGRAPHIC LOCATION

The sample is further divided to explore any variation in the market valuation of bank-insurance deals that stems from the geographic location of the bidder. Looking at the bancassurance trend across the world, it is a market reality that European financial institutions have a lead against those located in other continents (Artikis, Mutenga and Staikouras, 2008; Nurullah and Staikouras, 2008; Staikouras, 2006). At the same time, the demise of the U.S. regulatory restrictions between banks and insurers, following the Financial Services Modernization Act (FSMA, 1999), provides a fertile terrain for cross-continent analysis. The sample is split into four major groups namely the U.S., Australasian, European and Canadian bidders. The results are presented in Table 4.12. Looking at Australasian bidders it is clear that the market does not attach any value to deals initiated by these institutions. One explanation for this could be that the market for bancassurance in Asia and Australia is still in its infancy, when compared to the respective market penetration and its witnessed success in the western economies. Shifting the focus to the other three groups, U.S., European and Canadian bidders are found to exhibit positive excess returns upon the announcement day(s), yet the latter are only significant for the U.S. bidders (1.05%) and European bidders (0.56%). A closer look at the post-event excess returns reveals an interesting variation in the results. Specifically, Canadian bidders exhibit positive and significant post-event stock price adjustments, which persist even in extended windows – using the industry index. On the contrary, European bidders receive negative but insignificant valuations following

Table 4.12. Regional analysis

		United States				*Australasia*				*Europe*				*Canada*			
		Excess Returns		*Excess Returns*		*Excess Returns*		*Excess Returns*		*Excess Returns*		*Excess Returns*		*Excess Returns*		*Excess Returns*	
Event Period		*MI*		*II*		*MI*		*II*		*MI*		*II*		*MI*		*II*	
(-1, 0)	(0, +1)	1.16%	0.97%	0.87%	0.65%	-0.84%	-0.48%	-0.99%	-0.78%	0.80%	0.52%	0.63%	0.48%	0.38%	1.01%	0.75%	1.78%
		(3.01)[a]	(2.54)[a]	(2.44)[a]	(1.82)[c]	-(0.96)	-(0.55)	-(1.23)	-(0.97)	(2.80)[a]	(1.80)[c]	(2.57)[a]	(1.97)[b]	(0.69)	(1.82)[c]	(1.89)[c]	(4.51)[a]
(-2, 0)	(0, +2)	0.42%	0.97%	0.27%	0.51%	-0.51%	-0.73%	-0.53%	-1.60%	0.77%	-0.34%	0.47%	-0.42%	0.55%	1.26%	0.89%	2.25%
		(0.89)	(2.07)[b]	(0.62)	(1.18)	-(0.48)	-(0.68)	-(0.54)	-(1.61)	(2.19)[b]	-(0.98)	(1.58)	-(1.42)	(0.81)	(1.85)[c]	(1.84)[c]	(4.64)[a]
(-3, 0)	(0, +3)	0.29%	1.31%	0.15%	0.79%	-0.26%	0.60%	-0.36%	-0.67%	0.62%	-0.38%	0.28%	-0.59%	0.02%	0.18%	0.66%	1.47%
		(0.53)	(2.42)[a]	(0.30)	(1.57)	-(0.21)	(0.48)	-(0.31)	-(0.58)	(1.53)	-(0.94)	(0.80)	-(1.70)[c]	(0.02)	(0.23)	(1.18)	(2.63)[a]
(-4, 0)	(0, +4)	0.45%	1.71%	0.23%	1.20%	-0.04%	0.66%	-0.26%	-0.28%	0.32%	-0.60%	0.16%	-0.76%	-0.32%	-0.24%	0.66%	1.60%
		(0.73)	(2.82)[a]	(0.41)	(2.15)[b]	-(0.03)	(0.48)	-(0.21)	-(0.22)	(0.71)	-(1.32)	(0.41)	-(1.98)[b]	-(0.37)	-(0.28)	(1.06)	(2.55)[a]
(-5, 0)	(0, +5)	0.09%	1.12%	0.05%	0.63%	0.36%	0.97%	-0.50%	-0.10%	0.14%	-0.74%	0.05%	-0.78%	-0.83%	0.40%	0.45%	2.00%
		(0.13)	(1.69)[c]	(0.08)	(1.03)	(0.24)	(0.64)	-(0.36)	-(0.07)	(0.28)	-(1.50)	(0.11)	-(1.85)[c]	-(0.87)	(0.42)	(0.66)	(2.92)[a]
(-10, 0)	(0,+10)	-0.07%	1.66%	-0.27%	1.32%	-0.95%	-0.46%	-1.82%	-2.07%	0.34%	-0.57%	0.15%	-0.22%	-0.23%	1.31%	0.52%	1.77%
		-(0.07)	(1.85)[c]	-(0.32)	(1.58)	-(0.46)	-(0.22)	-(0.96)	-(1.09)	(0.50)	-(0.84)	(0.26)	-(0.39)	-(0.18)	(1.01)	(0.56)	(1.91)[c]
(-20, 0)	(0,+20)	-0.15%	1.40%	-0.62%	0.96%	-2.31%	-1.60%	-2.68%	-1.31%	0.72%	-0.23%	0.29%	0.49%	0.92%	1.61%	1.11%	2.39%
		-(0.12)	(1.13)	-(0.54)	(0.84)	-(0.82)	-(0.56)	-(1.02)	-(0.50)	(0.77)	-(0.24)	(0.36)	(0.62)	(0.51)	(0.90)	(0.87)	(1.86)[c]
Event Period																	
(0, 0)	(-1, +1)	1.05%	1.07%	0.78%	0.72%	-0.13%	-1.18%	-0.51%	-1.26%	0.56%	0.76%	0.53%	0.58%	0.57%	0.83%	1.01%	1.52%
		(3.86)[a]	(2.32)[b]	(3.13)[a]	(1.70)[c]	-(0.22)	-(1.10)	-(0.90)	-(1.27)	(2.77)[a]	(2.16)[b]	(3.06)[a]	(1.94)[c]	(1.45)	(1.22)	(3.60)[a]	(3.14)[a]
(-2,+1)	(-2, +2)	0.34%	0.31%	0.13%	-0.03%	-0.86%	-1.10%	-0.80%	-1.62%	0.72%	-0.14%	0.42%	-0.48%	0.99%	1.24%	1.67%	2.13%
		(0.63)	(0.52)	(0.27)	-(0.05)	-(0.69)	-(0.80)	-(0.70)	-(1.26)	(1.78)[c]	-(0.30)	(1.23)	-(1.24)	(1.26)	(1.41)	(2.98)[a]	(3.41)[a]
(-3,+1)	(-3, +3)	0.22%	0.52%	0.01%	0.13%	-0.60%	0.47%	-0.63%	-0.52%	0.57%	-0.32%	0.23%	-0.84%	0.46%	-0.37%	1.44%	1.13%
		(0.36)	(0.74)	(0.02)	(0.20)	-(0.44)	(0.29)	-(0.49)	-(0.34)	(1.26)	-(0.60)	(0.59)	-(1.84)[c]	(0.52)	-(0.36)	(2.30)[b]	(1.52)
(-4,+1)	(-4, +4)	0.37%	1.09%	0.09%	0.64%	-0.38%	0.76%	-0.53%	-0.03%	0.28%	-0.84%	0.11%	-1.13%	0.12%	-1.14%	1.44%	1.26%
		(0.56)	(1.37)	(0.15)	(0.87)	-(0.25)	(0.41)	-(0.38)	-(0.02)	(0.56)	-(1.37)	(0.26)	-(2.19)[b]	(0.12)	-(0.97)	(2.10)[b]	(1.50)
(-5,+1)	(-5, +5)	0.02%	0.15%	-0.09%	-0.11%	0.02%	1.47%	-0.77%	-0.08%	0.09%	-1.17%	0.00%	-1.27%	-0.39%	-1.00%	1.23%	1.45%
		(0.02)	(0.17)	-(0.13)	-(0.13)	(0.01)	(0.72)	-(0.51)	-(0.04)	(0.17)	-(1.74)[c]	(0.00)	-(2.21)[b]	-(0.38)	-(0.77)	(1.66)[c]	(1.56)
(-10,+1)	(-10, +10)	-0.14%	0.47%	-0.40%	0.19%	-1.30%	-1.28%	-2.09%	-3.38%	0.29%	-0.79%	0.10%	-0.61%	0.21%	0.52%	1.30%	1.28%
		-(0.15)	(0.38)	-(0.46)	(0.17)	-(0.61)	-(0.45)	-(1.05)	-(1.29)	(0.41)	-(0.85)	(0.17)	-(0.77)	(0.16)	(0.29)	(1.34)	(1.00)
(-20,+1)	(-20, +20)	-0.22%	0.22%	-0.76%	-0.41%	-2.66%	-3.78%	-2.95%	-3.47%	0.67%	-0.07%	0.24%	0.25%	1.36%	1.96%	1.89%	2.49%
		-(0.18)	(0.13)	-(0.65)	-(0.26)	-(0.92)	-(0.95)	-(1.10)	-(0.95)	(0.71)	-(0.05)	(0.29)	(0.23)	(0.74)	(0.78)	(1.44)	(1.39)

The sample here consists of 43 bancassurance deals involving U.S. bidders, 8 deals involving Canadian bidders, 62 deals involving EU bidders and 10 bancassurance deals involving Australasian bidders, excluding deals where the targets are insurance agencies. After adjusting for multiple bids the sample size drops to 40 US bidders, 8 deals involving Canadian bidders, 54 deals involving EU bidders and 10 Australasian bidders. The reported values are cumulative average abnormal returns. The event windows are presented under the first two columns and excess returns are reported in that order under each of the subsequent four headings. Abnormal returns are calculated using standard event study methodology with a two-factor variant of the market model – where statistically necessary. As a proxy for market risk, the general market index and sector specific index are employed separately. The figures in brackets indicate t-values.

MI and II stand for Market Index and Industry Index respectively.

a/b/c denote significant CAAR at the 0.02/0.05/0.10 level (two-tailed test) for the pertinent event period.

the 2-day (0 +1) window, which subsequently become negative and significant when the industry index is employed. Finally, U.S. bidders seem to reap the benefits from bancassurance announcements, if one considers the higher excess return they experience upon the announcement day and the persistence of post-event CAARs using the wider market index. In general, the U.S. market is found to provide a stronger support for bancassurance combinations, most likely due to the recent removal of the regulatory restrictions imposed on bank affiliations with insurance companies.

4.4.2.4. BANCASSURANCE SELL-OFFS

Since its inception, bancassurance has been used by banks and insurance companies as a means of achieving synergies. These can appear in the form of cost and revenue economies of scale and scope and/or risk diversification. The expected benefits from the combination of banks and insurers at both the retail and corporate level, have spawned an unprecedented wave of mergers and acquisitions between the two, with the magnitude of success being noticeably diverse across countries and continents. In many cases bank-insurance marriages have spawned balance sheet problems that few expected. What is more, the global economic slowdown during the early years of the millennium did not do much either to sustain the viability of a number of these structures. Valuation ratios in the insurance market hit an eight-year low in 2002, while stocks markets continued to fall for the third straight year. Insurers, which meet claims through vast equity investments, saw the value of their reserves evaporating, and many firms turned to their shareholders for additional funds. As for real world examples, Credit Suisse and Citigroup experienced decreases in their financial performance due to earnings' volatility of their insurance arms. As a result, the first divested both its insurance arms, namely Winterthur International in 2001 and Churchill Insurance later in 2003, while Citigroup spun-off its Travelers property and casualty division in 2001 and subsequently managed a full exit from bancassurance by divesting its Travelers life and annuity business in 2005. Other bancassurance companies followed suit. It is therefore interesting, both from an academic and practical perspective, to investigate these divestments and compare the findings with the previous table(s). Table 4.13 shows the effect that these sell-offs had on the equity prices of the companies exiting bancassurance.

Table 4.13. Cross-section analysis of bank-insurance sell-offs

Event Period		*Excess Returns via Market Index*		*Excess Returns via Industry Index*	
(-1, 0)	(0, +1)	0.30%	0.30%	0.56%	0.59%
		(0.45)	(0.44)	(0.84)	(0.89)
(-2, 0)	(0, +2)	0.52%	0.03%	0.77%	0.23%
		(0.63)	(0.03)	(0.94)	(0.28)
(-3, 0)	(0, +3)	0.96%	-0.61%	1.06%	-0.63%
		(1.00)	-(0.64)	(1.13)	-(0.66)
(-4, 0)	(0, +4)	1.42%	-0.74%	1.55%	-0.48%
		(1.33)	-(0.69)	(1.47)	-(0.45)
(-5, 0)	(0, +5)	1.75%	-0.63%	1.81%	-0.06%
		(1.49)	-(0.53)	(1.56)	-(0.05)
(-10, 0)	(0,+10)	0.01%	-0.50%	0.74%	0.14%
		(0.01)	-(0.32)	(0.47)	(0.09)
(-20, 0)	(0,+20)	-3.00%	1.08%	-1.12%	1.21%
		-(1.36)	(0.49)	-(0.52)	(0.56)
Event Period					
(0, 0)	(-1, +1)	0.74%	-0.14%	1.02%	0.14%
		(1.54)	-(0.16)	(2.16)[b]	(0.17)
(-2,+1)	(-2, +2)	0.08%	-0.19%	0.34%	-0.02%
		(0.08)	-(0.18)	(0.36)	-(0.02)
(-3,+1)	(-3, +3)	0.52%	-0.39%	0.64%	-0.58%
		(0.49)	-(0.30)	(0.61)	-(0.46)
(-4,+1)	(-4, +4)	0.98%	-0.06%	1.13%	0.05%
		(0.84)	-(0.04)	(0.97)	(0.04)
(-5,+1)	(-5, +5)	1.31%	0.39%	1.39%	0.73%
		(1.03)	(0.24)	(1.11)	(0.47)
(-10,+1)	(-10, +10)	-0.43%	-1.23%	0.31%	-0.14%
		-(0.26)	-(0.56)	(0.19)	-(0.07)
(-20,+1)	(-20, +20)	-3.44%	-2.66%	-1.54%	-0.93%
		-(1.53)	-(0.86)	-(0.69)	-(0.31)

The sample here consists of 16 sell-offs, where banks exit bancassurance by the divestiture or spin-off of the insurance business, announced between 1990 and 2006. The reported values are cumulative average abnormal returns. The event windows are presented under the first two columns and excess returns are reported in that order under each of the subsequent three headings. Abnormal returns are calculated using standard event study methodology with a two-factor variant of the market model – where statistically necessary. As a proxy for market risk, the general market index and sector specific index are employed separately. The figures in brackets indicate t-values.

* Multiple bids arise when institutions announce the acquisition of more than one target on a given day. To avoid multiple counting of the same effect we treat these cases as one when averaging out the ARs and CARs.

a/b/c denote significant CAAR at the 0.02/0.05/0.10 level (two-tailed test) for the pertinent event period.

The findings are not as clear as those reported in the previous sections. Looking at the excess returns on the announcement day, it is observed that they are positive irrespective of the market proxy used, yet statistical significance depends on the index employed. Specifically, using the industry proxy, there is a positive and significant stock market reaction of 1.02%, while this is not the case for the figure obtained using the wider market index, which is still positive but insignificant. Shifting the focus to the CAARs on the windows before the announcement, the majority of the reported figures are positive but insignificant. On the other hand the excess returns for the symmetric and post-event windows, turn negative but still remain insignificant. The overall picture is that exits from bank-insurance structures produce insignificant

excess returns, yet when the industry index is employed the results are somewhat mixed.

This is also verified when individual cases are considered separately. For instance, Citigroup's exit from the insurance business generated a strong market reaction. Citigroup's stock price enjoyed a positive and significant AR of 3.04% when the former announced its intention to spin-off its Travelers P/C division in 2001, but a positive and insignificant abnormal return when it announced its plans to sell its Travelers Life & Annuity operations to MetLife Inc. in 2005. However, the circumstances leading to Citigroup's decision to withdraw from the Travelers P/C business are somewhat special and can provide a subtle justification for the positive market reactions. Analysts at the time held that the volatility and unpredictability in the earnings distribution of the P/C operation were hurting Citigroup's stock price. In 2001 Travelers P/C suffered $500 million losses, mostly attributed to claims linked with the World Trade Center (WTC) terrorist attacks. It is also true that Travelers P/C had a massive exposure to asbestos liabilities. Citigroup's exits from the insurance business provide some support to Felgran's (1985) suggestion that banks would not extract much gain from providing insurance underwriting services because of the high risk(s) involved. In addition, the two Citigroup cases and the subsequent reactions corroborate the findings of the literature where property and casualty insurance is found to be a less favourable complement to banking than life insurance.

4.5. CONCLUSION

This chapter examines the excess returns experienced by acquiring firms around the announcement of bancassurance partnerships. The model employed is an event study methodology using a two factor variant of the market model, where statistically necessary. The sample consists of 226 bancassurance M&A announcements. Specifically, 100 cases correspond to deals where banks bid for insurance companies, 20 cases involve insurance companies' bids for banks, 90 cases incorporate banks' bids for insurance agencies, and finally 16 cases of bank sell-offs of their insurance arms.

The analysis points to some interesting conclusions. On average, companies that pursue a bancassurance strategy experience positive and significant excess returns on and around the announcement day(s). Thus, on average, bancassurance creates value

for the stockholders of acquiring firms. The decomposition of the sample of deals based on the nature of business (sector) of the acquirer yields some very interesting results. Specifically, banks increase shareholder value in bids for insurance firms. On the announcement day(s) of diversification into the insurance business, they experience a positive and significant AAR of 0.82%, which is followed by positive and significant CAARs. On the contrary, insurance companies do not add value for their shareholders in analogous bids for banks, as they experience negative but insignificant excess returns throughout the event period.

When the sample is decomposed based on sample characteristics, the results indicate that, as in banking mergers, investors seem to anticipate more synergies to be realised through domestic bancassurance deals. Moreover, large deals are found to be superior to small deals in terms of their valuation by the market. At the regional level, U.S. bidders experience higher price adjustments than bidders from other geographic regions. Finally, while European and Canadian bidders experience positive AARs on and around the time of the announcement day(s), Australasian acquirers receive negative but insignificant valuations.

Further analysis of the announcement of bancassurance divestitures and spin-offs yields mostly insignificant results. Nevertheless, the latter are mixed when the industry proxy is employed.

To sum up, it is clear that bancassurance mergers are supported by the market, possibly due to expectations of higher synergies for the combined entity. The negative valuation of insurance companies' bids for banks could be interpreted as a precaution by the market, given investor claims that bancassurance is a mere bank driven phenomenon that only benefits banks. This is consistent with the market-disruption hypothesis of Cowan, Howell and Power (2002) under which potential profits from insurance activities are simply rerouted to banks.

This chapter addressed the question of whether bancassurance deal announcements trigger trading movements that significantly affect the stock prices of acquiring institutions. The answer is an emphatic yes which is also accompanied by further evidence of variations in abnormal returns based on a set of deal or bidder characteristics. An important question that still remains unanswered is whether investors "blindly" value such deals, or if they do so by considering a set of firm financials and deal specific information that can form the basis of a more accurate forecast of future performance. As such, the next chapter delves into the determinants

of the variation in abnormal returns while simultaneously controlling for a number of factors. This analysis is performed within a multivariate setup, where the dependent variables are the estimated CARs and the independent variables are various accounting and deal specific characteristics that are expected to determine market expectations and, as a result, bidder excess returns.

5. WHAT DRIVES BIDDER EXCESS RETURNS IN BANCASSURANCE MERGERS?

5.1. INTRODUCTION

After years of cyclical interactions between regulatory restrictions, company innovations, re-regulation and/or deregulation (Kane, 1981; 1988), financial institutions are now able to functionally diversify their operations[68]. This allowed for the formation of financial conglomerates, universal banks and the emergence of bancassurance. As Staikouras (2006) points out, the underlying motive behind consolidation is the hunt for new business opportunities and further profit sources through hybrid corporate structures.

Despite the increasing use of bancassurance as a mechanism for revenue diversification, evidenced by its widespread adoption by companies around the world, there is not much empirical evidence on the determinants of the markets' reaction around bank-insurance partnership announcements. In addition, the limited previous literature yields somewhat conflicting results[69]. In the previous chapter it has been found that bank-insurance partnership announcements cause significant trading movements that affect the equity prices of acquiring institutions. Furthermore, the disaggregation of the sample of deals into various groups depending on various characteristics, such as the nature of the bidder (bank vs. insurer), the nature of the target (insurance underwriter vs. insurance agency), the geographic origin of the bidder, the size of the deal and the nature of the deal (domestic vs. cross-border), has shown that such factors can affect market expectations and therefore produce variations in abnormal returns. Nevertheless, some or all of the factors examined, may have a simultaneous effect on abnormal returns. A univariate analysis can shed light on the aggregate effect of these factors on abnormal returns, but not on the individual effect of each factor, while controlling for the rest. It is therefore of paramount

[68] The cornerstone for the liberalisation of the European financial services industry was introduced in 1989 when the Second Banking Directive was adopted by the EU Council of Ministers. However, the directive was only implemented by all 15 member states between 1991 and 1994. See Chen (2007) for further details. The financial services industry in the United States remained fragmented until 1999, when the Financial Services Modernization Act removed the remaining barriers imposed by the National Banking Act (1864), the Banking Act (1933), and the Bank Holding Company Act (1956).

[69] A significant drawback of previous studies is the fact that they fail to differentiate between bank bids for insurance companies and bank bids for insurance agencies. As discussed in the previous chapter, banks exhibit different risk-return profiles when they acquire insurance underwriters, as opposed to acquiring insurance brokers. As such, aggregating the results from these types of deals can lead to conflicting conclusions.

importance to examine the effect of each determinant of cumulative abnormal returns (CARs, thereof) while controlling for other factors. Such an analysis can be performed in a multivariate setup, where the dependent variables are the estimated CARs and the independent variables are various accounting and deal specific characteristics that are expected to determine market expectations and as a result, bidder excess returns.

This chapter aims to unveil the drivers of heterogeneity in CARs around the announcement of a bancassurance deals. To the best of our knowledge, this study uses the most comprehensive sample of bancassurance deals, which spans from 1990 to 2006 and involves 210 corporate events. In addition, previous studies fail to differentiate between deals where the targets are insurance companies and deals where the targets are insurance agencies. Given the distinct risk-return profiles offered by these two sets of combinations, the results of these studies might be biased. This study accounts for the above issue by decomposing the sample into bank deals with insurance firms and bank deals with insurance agencies, and examining the determinants of excess returns separately. A multivariate cross sectional framework is employed, where various accounting measures and deal specific characteristics are considered as potential factors driving abnormal returns.

The analysis points to a number of interesting conclusions. Bidders which are already reliant on significant amounts of non-interest income experience negative valuations around the announcement of bancassurance deals. In addition, the market favours deals with greater potential for scale economies, and deals where the acquiring institution is U.S. based. What is more, there is some evidence against the conclusions drawn in the previous chapter. More specifically, controlling for other factors simultaneously, bank bidders are found to lose value. Domestic deals do not trigger higher bidder excess returns. Furthermore, the decomposition of the sample into deals before and after the Financial Services modernization Act of 1999 (FSMA, thereof), reveals a shift in the relative importance of the factors affecting bidder abnormal performance. Deals before the FSMA, are valued by investors based on estimates of bidder growth opportunities, the potential for scale economies and whether the deal was initiated by a U.S. financial institution, while deals announced following the passage of FSMA are valued based on estimates of the bidders' capacity for further functional diversification and profitability levels. Last but not least, the

market does not consider any company or deal characteristics when valuing bank acquisitions of insurance agents/brokers.

In what follows, section 2 reviews the existing body of related research and discusses the empirical findings, while section 3 presents the sample and methodological framework employed. The empirical findings are presented in section 4, while the implications for bancassurance are adeptly analysed in section 5. Finally, section 6 concludes this chapter.

5.2. Literature Review

The exploration of the determinants of excess returns associated with the blurring boundaries between financial intermediaries and specifically banks and insurance companies has been an integral part of the majority of event studies in this area. These studies generally examine the phenomenon either directly or indirectly. On the one hand, indirect studies focus on the response of the market to specific deal announcements and the effect on peer companies, or examine the market's reaction to certain regulatory events. On the other hand, direct evidence focuses on the impact of a number of bank-insurance partnership announcements on the stock prices of the involved institutions. Nevertheless, only limited research on the direct impact of bancassurance mergers exists. Given that the determinants of excess returns from bancassurance mergers are examined by the same strand of research, limited conclusions can be drawn with regards to the factors taken into account by investors when valuing these partnerships.

Early event studies have approached the phenomenon through examining the response of the market to various court rulings/regulatory events that had implications for the interface between banks and other financials and consequently bancassurance. In what follows, the findings of these studies with respect to the determinants of the abnormal returns experienced by the cross section of the companies are discussed. Carow and Lee (1997) use an event study methodology to examine the stock price reactions of 271 banks to 50 interstate banking laws passed by 49 states and the District of Columbia. The cross-sectional analysis shows that smaller banks, located in less concentrated states with faster growth exhibited the highest excess returns, something consistent with takeover opportunities. Similar results are reported in Carow and Heron (1998) who investigate the effects of the passage of the Interstate

Banking and Branching Efficiency Act of 1998 (IBBEA) on the stock prices of 180 bank holding companies (BHCs). The sample is comprised of 90 BHC with existing interstate presence and 90 without interstate presence. The analysis of the determinants of excess returns produces insignificant results in relation to whether banks that were previously more restricted would experience greater wealth effects. They suggest that most of the benefits stemming from the relaxation of restrictions were realised through the passage of state-level interstate banking laws. They also report a significant inverse relationship between return on assets and BHC returns. It is suggested that poorly performing firms are more likely to become takeover targets, and as a consequence, there is an increased probability of receiving bids in the post-IBBEA period. Results also show that companies with lower capital ratios experience higher abnormal returns. Others delve into the excess returns experienced by increases in securities powers granted to banks by the Federal Reserve and the respective factors being responsible for the variation in abnormal returns. More specifically, Ely and Robinson (1998) examine the determinants of excess returns for 24 banks with a security subsidiary, 41 banks with no security subsidiary and 20 investment banks. They find a positive relation between the profit margin and excess returns and suggest that greater profitability is likely to attract merger partners, yet this is not in line with the insignificant coefficient for return on equity (ROE). On the other hand, they report a negative relation between company size and excess returns that is most likely caused by the difficulty in getting a merger regulatory approval given the revenue limit. In a similar study, Ely and Robinson (1999) find a negative relation between ROE and excess returns, but report an insignificant coefficient for size for 26 banks already engaged in securities activities. It is important to note however, that the reported adjusted R^2 values are very low, ranging from 1% to 4% depending on the model specification.

Another set of early studies focuses on the market response to court rulings allowing or prohibiting banks to sell insurance products. For example, Carow (2001b) studies the effect of 3 rulings of the Office of the Comptroller of Currency (OCC)[70] and 3 Supreme Court rulings allowing banks to sell annuities and insurance products, on the stock prices of 133 banks and insurance companies. The cross section analysis

[70] "The Office of the Comptroller of the Currency (OCC) charters, regulates, and supervises all national banks. It also supervises the federal branches and agencies of foreign banks. Headquartered in Washington, D.C., the OCC has four district offices plus an office in London to supervise the international activities of national banks" source: http://www.occ.treas.gov/aboutocc.htm

focuses on the determinants of CARs from the annuities rulings, the insurance rulings and across all rulings. With regards to the annuities rulings, he finds that the charter of the bank and the presence of an insurance subsidiary are not taken into account by the market. On the contrary, insurers that use brokerage as one of their distribution systems benefit from the rulings, while insurance agencies and life and health insurers lose value. This is because as banks enter insurance brokerage, competition for direct writers and agents will increase substantially. What is more, the author points out that the negative and significant coefficient for health insurers indicates that banks are expected to compete more heavily in the life and health market. Moving to the rulings affecting the bank sale of insurance products, banks with an existing insurance subsidiary benefit the most, while national banks and health insurers lose value. The results for the determinants of CARs across all events verify the previous conclusions, while further regressions show a positive relation between insurance companies' size and CARs. As suggested, large insurers are more immune in terms of bank competition, because of their reputation and their potential for scale economies in case they become takeover targets. Likewise, Cowan, Howell and Power (2002) examine the stock market reaction to four court and regulatory decisions regarding banks' rights to originate and market annuity products. The cross sectional analysis involves the regression of CARs from these rulings on firm characteristics of insurers and bank holding companies. They find that on average small, financially weaker insurers that are more concentrated in the annuity business and those using independent agents lose value from the expansion of bank rights to sell annuities, something consistent with Carow (2001b). On the other hand, their results suggest that large, risky bank holding companies with geographically concentrated deposits that are more reliant on non lending activities or consumer business gain value.

The primary evidence from actual bank-insurance mergers comes from studies that delve into the effect of Citicorp-Travelers merger in 1998 on the stock prices of peer institutions (Carow, 2001a; Johnston and Madura, 2000). The cross sectional analysis of the first study reports that large banks and life insurance companies have significantly higher abnormal returns than small banks, national banks and P/C insurance companies, while the second, finds a significant relation between size and CARs for commercial banks and brokerage firms, but an insignificant relation between size and excess returns for insurers. The difference in the results of the two studies might be related to sample differences. In particular, while the cross section

analysis in Carow (2001a) involves a sample of 373 companies, Johnston and Madura (2000) do not report the sample for their cross section analysis[71].

Another strand of research examines the phenomenon by looking at the effects of the Financial Services Modernization Act of 1999 on the stock prices of financial institutions and the respective determinants of excess returns. More specifically, Carow and Heron (2002) study the stock price reaction of financial institutions to 6 events leading to the passage of the Gramm-Leach-Bliley Act. Consistent with previous findings, their cross section findings for 170 financial institutions shows that that large investment banks and large insurance companies benefited from the Act, whereas thrifts, finance companies and foreign banks lost value. The authors conclude that national banks did not experience positive results because the stock prices of banks already reflected gains related to product-line diversification. They also conclude that the gains experienced by investment banks and insurance companies can be attributed to expectations that they will become targets of banks, as well as to the fact that the FSMA limits the extent of the Federal Reserve's authority on non-banks, giving more power to the SEC and insurance regulators, who are more likely to promote sectoral interests. In a similar fashion, Hendershott, Lee and Tompkins (2002) examine the determinants of excess returns related to the FSMA for 297 commercial banks 36 investment banks and 139 insurance companies. The results point to a positive relation between size and commercial bank, investement bank and insurance company abnormal returns. In addition, more profitable banks, as measured by their return on assets (ROA), experience more positive valuations around the announcement of the Act. The authors suggest that larger and more profitable institutions are better positioned to expand into new areas.

The availability of actual bank-insurance combinations in recent years has paved the way for studies that look into the direct effect of such deals on the stock prices of the involved institutions. One way to enter the bank-insurance business is by forming strategic alliances. In a study on the market's reaction to the formation of strategic alliances Chan, Kensinger, Keown and Martin (1997) reveal a negative relation between company size and excess returns. Somewhat consistent with previous studies in support of the bank-insurance phenomenon, alliances between companies in related

[71] Although their event-study sample includes 62 companies, the final sample for the cross-section analysis is not reported. Although it could be the same, it is usually expected that the unavailability of some accounting and/or qualitative data will make the cross-section sample smaller.

industries (horizontal alliances) are found to be better than alliances between companies that operate in unrelated industries (non-horizontal alliances). It is also revealed that the market is in favour of horizontal alliances that involve complementarities in knowledge and skills. Nevertheless, this study does not consider strategic alliances between banks and insurance companies, and therefore the implications of the results for the bancassurance phenomenon are relatively limited. On the contrary, some initial conclusions can be drawn by the early study of Cybo-Ottone and Murgia (2000). Ten bancassurance mergers are present in their sample of European mergers and acquisitions. Their cross sectional analysis focuses on the factors driving excess returns. In particular, the regressions involve 46 deals for size and deal characteristics and then a cross section analysis of 54 bidders and 72 targets for country effects. The results suggest no relation between CARs and target size. In addition, there is a positive relation between domestic deals and CARs and no relationship between either small deals or deals between commercial banks and CARs, while there is limited evidence for country effects. Despite the appearance of 10 bank-insurance mergers in the event study sample, the authors do not report whether these deals appear in the reduced sample of their cross section analysis. Chen, Li, Moshirian and Tan (2007) focus on 42 European bancassurance mergers. Their cross section results suggest a positive relation between the ratio of the target's market value to the bidder's market value and CARs as well as a positive relation between the change in systematic risk before and after the merger and the market valuation. What is more, the market is found to ignore cross border deals.

In a more comprehensive study on a global sample of bank-insurance mergers Fields, Fraser and Kolari (2007a) examine the determinants of the variation in CARs experienced around the announcements of such partnerships. The cross section regressions for 36 deals show that the market favours deals where synergies through profitability, scale and scope economies are more likely to arise. Furthermore and contrary to earlier findings, they find that cross-border deals are associated with positive abnormal returns and, in contrast with Chen, Li, Moshirian and Tan (2007), they report a negative relation between change in systematic risk before and after the merger and CARs. Using the same sample of deals, Fields, Fraser and Kolari (2007b) expand their previous analysis of the determinants of the excess returns associated with bancassurance mergers by using different model specifications and by introducing models that include corporate governance variables. In the first set of

regressions they find a positive relation between bidder return on assets and CARs. They suggest that if the bidder has been able to produce high profits in the past it will manage to do so after the acquisition as well. Similar to their previous study, cross border bancassurance deals are found to be superior to domestic ones, an indication that the benefits from geographic diversification outweigh the difficulties that arise from cross border mergers; the latter being demographic and cultural differences together with language and regulation barriers. One significant drawback of the two aforementioned studies is that they fail to take into account the differences in the risk-return profiles of banks when the latter merge with insurance companies as opposed to mergers with insurance agents/brokers (Boyd, Graham and Hewitt, 1993; Nurullah and Staikouras, 2008). In failing to differentiate between the two, the results can be misleading[72].

The consensus of the studies points to a positive relationship between company size and excess returns associated with the blurring boundaries between banks and insurance companies. It is suggested that the markets value the potential for scale economies. Relatively stable conclusions are also drawn on the effect of profitability, as investors have higher expectations for profitable institutions. On the other hand, mixed results are reported with regards to the effect of geographic diversification and the effect of changes in systematic risk of the institutions. However, the extant empirical evidence suffers from two considerable drawbacks. At first, the majority of the findings come from studies that are indirectly assessing the phenomenon. Second, direct studies on bank-insurance deals suffer from either small sample biases, or from the fact that they fail to differentiate between bank acquisitions of insurance firms, and banks acquisitions of insurance agents/brokers. As such, the conclusions drawn from these studies can be unrealistic and biased.

5.3. DATA AND METHODOLOGY

The data selection incorporates the sample of deals that was used in the event study analysis in chapter 4. As such, 210 international bancassurance partnership events between 1990 and 2006 are considered. The events include 120 major restructuring events with 100 cases where banks bid for insurers and 20 cases where insurers bid for banks. In addition, 90 events where banks bid for insurance agencies are

[72] For further elaboration on this matter see footnote no. 69 pp. 111.

examined. The current framework utilizes accounting data for all acquiring institutions that are present in the current sample as well as deal specific variables. Excess returns and cumulative excess returns, as estimated in the previous chapter, are also employed in the current framework.

Individual acquirer excess returns (CARs) from various time frames relative to the announcement of each deal are obtained from the event study database constructed for the purposes of the previous chapter. The Thomson One Banker database and/or Datastream are then used to retrieve year end accounting data for each acquirer in the sample, from 1989 to 2006. Once obtained, the data is matched to the respective CARs in such a way so that each company's abnormal performance on a given date corresponds to the last reported year end accounting data of that particular institution, before the announcement is made public. Finally, deal specific information and data are obtained from Thomson One Banker's deal tear sheets.

The analysis of the determinants of bidder abnormal performance involves a multivariate regression of the abnormal returns on a set of accounting and deal specific variables using ordinary least squares. The mathematical expression for the model is the following:

$$AR_t = \alpha + \sum \beta_i F_i + \varepsilon_t, \tag{5.1}$$

where *AR* is the excess return or cumulative excess return (*CAR*) over different time frames *t*, α is the constant, β are the sensitivities of *AR* to each factor *F*, and ε is the error term with the usual properties. The accounting exogenous variables (*F*) considered in the model are the following: First, the relative deal size (RDS) as the ratio of value of the deal to the market value of bidder. This ratio represents a measure of potential scale economies, since the larger the deal size relative to the bidder's market value, the greater the potential synergies (Chen, Li, Moshirian and Tan, 2007). Second, the ratio of the bidders' non-interest income to total operating income (NII/TOI). This ratio is used as a functional diversification measure given that the higher the proportion of non-interest income, the more diversified the institution is, in terms of income generated through nonbanking activities (Baele, De Jonghe and Vander Vennet, 2007). In effect, specialized commercial banks will have a lower ratio of non-interest income to total operating income, while this ratio is expected to be

higher in universal banks and financial conglomerates. Finally, the operating leverage expressed as the ratio of total assets to common equity[73], the market to book value and profitability, expressed as either ROE or ROA are employed. The deal specific independent variables used in this setup are the following: First, a domestic deal dummy which is equal to one if the headquarters of the involved institutions are in the same country and zero otherwise. Second, two dummy variables to account for the nature of the bidder and target companies. More specifically, the first indicator variable is equal to one if the bidder is a bank and zero if the bidder is an insurance company, whereas the second indicator variable takes the value of one if the target is an insurance agent/broker and zero if the target is an insurance firm[74]. Finally, two more dummy variables are used, one that accounts for deals where the bidder is a U.S. institution; set to one if the acquirer is U.S. based and zero otherwise, and a regulation interaction dummy equal to one for deals announced after the FSMA 1999 and zero otherwise, and vice versa.

5.4. EMPIRICAL FINDINGS

The current section presents the findings from the analysis of determinants of excess returns from bancassurance partnership announcements. First, the results from all bancassurance cases excluding cases where the targets are insurance agencies/brokers are considered[75]. Second, the determinants of excess returns of cases where the bidder is a bank and the target an insurance firm are examined to assess whether there are any variations in the factors that affect investor decisions and therefore abnormal returns, depending on the nature of the bidder (bank vs. insurance firm). Finally, the determinants of cases where the target is an insurance agency/broker are isolated and results presented. This is because a closer look at the literature on the interface between bank and insurance companies reveals differences

[73] Bank leverage is calculated as: (Total Assets - Customer Liabilities on Acceptances) * 100 / Common Equity, where customer liabilities on acceptances are only subtracted when included in total assets. For insurance companies, leverage is calculated as: Total Assets * 100 / (Common Equity + Policyholders' Equity).

[74] Empirical evidence shows that there are differences in the risk-return profiles of banks when they combine with insurance agencies/brokers as opposed to combinations with insurance firms (Boyd, Graham and Hewitt, 1993; Nurullah and Staikouras, 2008)

[75] Insurance agents and brokers act as intermediaries between the insurance companies and their clients. Insurance agents can be either tied to an insurance company or work for many different insurance companies; whereas, insurance brokers are usually large institutions that are fully independent. Adding a different perspective, insurance agents could be considered as acting for the company(ies) they are tied to, while brokers are acting on behalf of their client(s).

in the risk return profiles of banks when they combine with insurance agencies/brokers, as opposed to combining with insurance firms (Boyd, Graham and Hewitt, 1993; Nurullah and Staikouras, 2008). Despite these variations, the existing body of research does not differentiate between deals where the target is an insurance underwriter –exposed to underwriting risks – and deals where the target is and insurance agent/broker, where underwriting risk is not present. As such, not only the market is expected to react differently to combinations offering distinct risk-return profiles, but also the factors that are taken into account when valuing these deals are expected to be vary. Taking the above issues into consideration, analysing the determinants for both types of deals under the same framework could yield conflicting results.

Table 5.1 presents the results of the exploration of the determinants of bidder excess returns from bancassurance deal announcements, excluding deals where the targets are insurance agencies. Following the general-to-specific approach[76], the results from three models are presented under each column of the table. In addition, two sets of regressions are estimated, the first with the dependent variable being the 2 day [-1 0] cumulative abnormal return and the second with the dependent variable being the 3 day [-1 +1] CAR[77].

[76] The general-to-specific methodology involves starting with a large and statistically adequate model. This model is then restricted and reorganized until the most parsimonious formulation is reached. See Gilbert (1986) for a detailed discussion of this approach.

[77] An additional six CARs coming from different windows relative to the announcement have been used as dependent variables for each model. To conserve space, these results are presented in Table D.1 in the appendix.

Table 5.1. Determinants of bancassurance deal excess returns (all deals)

$$CAR_t = \alpha + \sum \beta_i F_i + \varepsilon_t,$$

Variable	**Model 1**		**Model 2**		**Model 3**	
	(-1,0)	(-1,+1)	(-1,0)	(-1,+1)	(-1,0)	(-1,+1)
Intercept	-0.031	0.059	-0.039	0.069	-0.013	0.091
	-(0.48)	(0.94)	-(1.55)	(1.39)	(-0.89)	(2.08)[b]
Market to book	0.001	-0.001				
	(0.30)	-(0.21)				
Leverage	0.001	0.001	0.001	0.000		
	(1.20)	(0.68)	(1.30)	(0.74)		
NII pct TOI	-0.070	-0.089	-0.070	-0.091	-0.077	-0.099
	(-1.72)[c]	-(2.22)[b]	-(1.95)[c]	-(2.46)[b]	-(2.26)[b]	-(2.81)[a]
Relative Deal size	0.049	0.052	0.051	0.053	0.056	0.054
	(2.68)[a]	(2.86)[a]	(3.01)[a]	(3.11)[a]	(3.44)[a]	(3.35)[a]
Return on equity	0.001	0.001	0.001	0.001		
	(0.94)	(1.12)	(0.79)	(1.17)		
DBB*	-0.020	-0.094		-0.096		-0.094
	-(0.45)	-(2.16)[b]		-(2.35)[b]		-(2.43)[b]
DDOM*	0.007	0.006				
	(0.42)	(0.36)				
DUS*	0.056	0.037	0.054	0.038	0.046	0.036
	(3.26)[a]	(2.23)[b]	(3.47)[a]	(2.51)[b]	(3.34)[a]	(2.68)[a]
DFSMA*	-0.003	0.003				
	(-0.22)	(0.24)				
N	47	47	47	47	49	49
F-value	2.91	2.92	5.58	4.67	8.79	6.88
Adjusted R^2	0.27	0.27	0.33	0.32	0.33	0.33
AIC	-3.45	-3.49	-3.61	-3.61	-3.68	-3.69

The sample here consists of 120 bancassurance deals announced between 1990 and 2006, excluding deals where the targets are insurance agencies. The unavailability of accounting or deal specific data for some companies/deals produces a final sample of 47 to 49 deals depending on the selected model. The abnormal returns are taken from the market model, where market risk is represented by the pertinent wide market index. The figures represent coefficient estimates, while those in brackets indicate t-values (White errors).

CAR stands for the bidder cumulative abnormal returns, α is the constant, F represents the exogenous factors listed in the first column of the table.

* DBB is the dummy taking into account the fact that the bidder is a bank, DDOM is the dummy taking into account domestic deals, DUS is the dummy taking into account U.S. bidders and DFSMA is the dummy variable taking into account deals that were announced after the passage of the Financial Services Modernization Act (1999).

a/b/c denote statistical significance at the 1%, 5% and 10% level.

Looking at the cross section regression output for the determinants of cumulative abnormal returns, it is evident that three to four variables are important in determining the market reaction to the bancassurance partnership announcements, depending on the choice of the model. At first, a negative and significant relation is observed

between the ratio of non-interest income to total operating income of the acquiring banks and the exhibited CARs. This variable remains negative and significant across all models and windows examined. One interpretation of the above result is that the market attaches less value to deals where the acquiring institution is already generating fee income, as opposed to institutions where non-interest income is comparatively low before the deal announcement. Proceeding with the analysis, there is a positive relation between the relative size of the deals and CARs, which is significant at 1% level across all models and windows. In essence, the greater the size of the target company compared to the market value of the acquirer, the higher the valuation that the market attaches to the acquiring company. Further examination of the models reveals that the U.S. dummy is positive and significant across all models. The latter finding corroborates the results of univariate analysis reported in the previous chapter, which show that deals where the acquiring institution is U.S. based, are superior to their counterparts, in terms of the excess return experienced around the time of their announcement. In effect, U.S. bidders are found to experience more favourable valuations even after controlling for the effect of other factors. Last but not least, a closer look at the models for the 3-day [-1 +1] window, reveals a very interesting result. The coefficient of the dummy variable taking into account deals where the bidder is a bank is negative and significant. As such, bancassurance deal announcements where the bank takes the lead, experience negative market valuations. This is in contrast to the results reported in the previous chapter, where bank driven bancassurance deals were found to experience higher excess returns than assure-banking partnership announcements. One interpretation for this discrepancy might be that the higher average excess return of bank driven deals observed in the univariate analysis is caused by another factor which is present in U.S. deals, yet unaccounted for. This could in fact be any of the contributing factors that are employed in the current multivariate approach. On the other hand, it is interesting to note that variables such as the bidders' market to book value, leverage and profitability, as expressed by return on equity, do not play in significant role in determining excess returns. What is more, when the geographic focus of the deals or their status as post-FSMA are considered simultaneously with other variables, the analysis produces no significant coefficients for them in any of the windows or models considered.

Despite the impact that the Financial Services Modernization Act (FSMA 1999) had on the structure of the U.S. financial services industry and consequently on the

interface between banks and insurance companies, the results so far suggest that there is no difference in the excess returns experienced by the bidders between deals that were announced before and after the Act. What might have changed however, are the factors that are taken into account by investors when valuing bancassurance partnerships. This has a practical as well as academic intuition if one considers the following: First, the enthusiastic reaction of the stock market to the Citicorp-Travelers mega merger in 1998 in conjunction with the varied responses among sectors of the financial services industry and/or between companies of the same sector depending on their characteristics (Carow, 2001a; Johnston and Madura, 2000). Second, the varied responses by financial firms to passage of the FSMA, combined with the documented evidence for a positive relation between company size and the exhibited excess returns (Carow and Heron, 2002; Hendershott, Lee and Tompkins, 2002; Lown, Osler, Strahan and Sufi, 2000; Neale and Peterson, 2005). In what follows, Table 5.2 presents the results for the shifts in the relative importance of determinants of excess returns from bancassurance announcements. This is accomplished by employing an interaction dummy variable that captures the possible shifts in the importance of factors determining CARs before and after the FSMA[78]. Following Table 5.1, two windows are examined under each of the two columns, while the pre- and post-FSMA determinants are examined for each window, respectively.

[78] Similar to the regressions in the previous table, the general to specific approach is also applied here. In order to conserve space, only the final (most parsimonious) model specification is presented in this table.

Table 5.2. Shifts in determinants of bancassurance deal excess returns before and after the Financial Services Modernization Act (1999)

$$CAR_t = \alpha + \sum D_B \times \beta_i F + D_A \times \beta_i F + \varepsilon_t,$$

Variable	(-1,0)		(-1,+1)	
	Before	After	Before	After
Intercept	-0.029	-0.029	0.069	0.069
	-(0.71)	-(0.71)	(1.57)	(1.57)
Market to book	-0.025	0.001	-0.023	0.001
	-(3.10)[a]	(0.40)	-(2.65)[a]	(0.42)
NII pct TOI [1]	-0.010	-0.119	-0.066	-0.097
	-(0.21)	-(2.43)[b]	-(1.29)	-(1.84)[c]
Relative Deal size	0.056	0.023	0.057	0.032
	(2.74)[a]	(1.14)	(2.59)[a]	(1.50)
Return on equity	0.001	0.002	0.001	0.003
	(1.18)	(2.27)[b]	(0.84)	(2.70)[a]
DBB*	0.021	0.015	-0.059	-0.103
	(0.55)	(0.31)	-(1.48)	-(1.98)[c]
DUS*	0.097	0.018	0.054	0.026
	(5.08)[a]	(1.20)	(2.62)[a]	(1.63)
N	49		49	
F-value	5.86		4.43	
Adjusted R^2	0.55		0.46	
AIC	-3.93		-3.79	

The sample here consists of 120 bancassurance deals announced between 1990 and 2006, excluding deals where the targets are insurance agencies. The unavailability of accounting or deal specific data for some companies/deals produces a final sample of 49 deals. The cumulative abnormal returns are taken from the market model, where market risk is represented by the pertinent wide market index. The figures represent coefficient estimates, while those in brackets indicate t-values (White errors).
CAR stands for the bidder cumulative abnormal returns, α is the constant, D_B and D_A is an interaction dummy variable used to assess the relative importance of the determinants *F* before and after the FSMA respectively, while *F* represents the exogenous factors listed in the first column of the table.
* DBB is the dummy taking into account the fact that the bidder is a bank and DUS is the dummy taking into account U.S. bidders.
[1] NII pct TOI represents the ratio of non interest income to total operating income.
a/b/c denote statistical significance at the 1%, 5% and 10% level.

Looking at the first column of the table that reports the results of the 2-day [-1 0] CARs, it is evident that there are changes in the contributing factors of CARs between deals announced before and after the FSMA. The results show that bancassurance partnerships announced before the Act are being valued by investors based on estimates of the bidders' market to book ratio, relative deal size and location. More specifically, the coefficient of the ratio of market to book value is negative and significant at 1%, indicating that overvalued bidders are inferior to undervalued bidders in terms of the excess returns they exhibit. Results also suggest a positive

relation between the relative size of the deal and bidder abnormal returns. In effect, the greater the value paid to acquire the target compared to the market value of the acquiring institution, the more positive the market valuation of the latter. In addition, the findings show that before the FSMA, investors value more favourably deals where the acquiring institution is U.S. based. Nevertheless, the importance of these characteristics fades away after the Act, with measures of functional diversification and profitability taking over. In particular, the coefficient of the ratio of non-interest income to total operating income is negative and significant at 5%, showing that bidders that are more specialized before the deal announcement experience higher excess returns. As for profitability, results show a positive and significant relation between ROE and CARs, indicating that more profitable bidders experience greater market valuations around the time of bancassurance partnership announcements. Shifting our focus to the 3-day [-1 +1] CARs, the results are almost identical. The only notable difference arises in the results for the post-FSMA deals, where the dummy variable responsible for bank bidders takes a negative coefficient, which is significant at the 10% level. This is in contrast to the results of chapter 4 that show bank bidders to be experiencing greater excess returns. However, this difference can be due to the fact that other deal or firm specific characteristics can have a significant impact on the cumulative average abnormal returns. Due to the nature of event study analysis, their individual effects can be difficult to quantify. The cross-sectional framework addresses this issue and allows for the impact of individual factors to be assessed.

Given that banks and insurance companies have distinct asset-liability structures, the determinants of bidder returns in bancassurance deals might differ depending on the nature of the bidder. In what follows, Table 5.3 and Table 5.4 isolate bank driven deals[79] and present the results for the determinants of bank acquirers' CARs and the shifts in the determinants before and after the FSMA respectively. Both tables follow the same structure as the previous tables, while results from additional windows are presented in Table D.2 in the appendix.

[79] Due to the small number of insurance company driven deals (20) and the unavailability of insurance company data that would further reduce this sample; the study does not consider the determinants of insurance bidder excess returns.

Table 5.3. Determinants of bank-insurance deal excess returns (bank bidders)

$$CAR_t = \alpha + \sum \beta_i F_i + \varepsilon_t,$$

Variable	**Model 1**		**Model 2**		**Model 3**	
	(-1,0)	(-1,+1)	(-1,0)	(-1,+1)	(-1,0)	(-1,+1)
Intercept	-0.051	-0.035	-0.024	-0.027	-0.012	-0.003
	-(1.29)	-(0.91)	-(1.19)	-(1.09)	-(0.77)	-(0.23)
Market to book	0.001	-0.001				
	(0.30)	-(0.21)				
Leverage	0.001	0.001	0.001	0.000		
	(1.20)	(0.68)	(1.06)	(0.74)		
NII pct TOI	-0.070	-0.089	-0.081	-0.091	-0.085	-0.099
	-(1.72)[c]	-(2.22)[b]	-(2.21)[b]	-(2.46)[b]	-(2.36)[b]	-(2.81)[a]
Relative Deal size	0.049	0.052	0.051	0.053	0.056	0.054
	(2.68)[a]	(2.86)[a]	(2.97)[a]	(3.11)[a]	(3.39)[a]	(3.35)[a]
Return on equity	0.001	0.001		0.001		
	(0.94)	(1.12)		(1.17)		
DDOM*	0.007	0.006				
	(0.42)	(0.36)				
DUS*	0.056	0.037	0.054	0.038	0.046	0.036
	(3.26)[a]	(2.23)[b]	(3.45)[a]	(2.51)[b]	(3.34)[a]	(2.68)[a]
DFSMA*	-0.003	0.003				
	-(0.21)	(0.24)				
N	46	46	46	46	48	48
F-value	3.28	2.97	6.81	5.05	8.85	8.20
Adjusted R^2	0.29	0.26	0.34	0.31	0.33	0.32
AIC	-3.46	-3.50	-3.61	-3.62	-3.67	-3.71

The sample here consists of 100 bancassurance deals announced between 1990 and 2006, excluding deals where the targets are insurance agencies. The unavailability of accounting or deal specific data for some companies/deals produces a final sample of 46 to 48 deals depending on the selected model. The cumulative abnormal returns are taken from the market model, where market risk is represented by the pertinent wide market index. The figures represent coefficient estimates, while those in brackets indicate t-values (White errors).

CAR stands for the bidder cumulative abnormal returns, α is the constant, F represents the exogenous factors listed in the first column of the table.

* DDOM is the dummy taking into account domestic deals, DUS is the dummy taking into account U.S. bidders and DFSMA is the dummy variable taking into account deals that were announced after the passage of the Financial Services Modernization Act (1999).

a/b/c denote statistical significance at the 1%, 5% and 10% level.

Table 5.4. Shifts in determinants of bank-insurance deal excess returns before and after the Financial Services Modernization Act (1999)

$$CAR_t = \alpha + \sum D_B \times \beta_i F + D_A \times \beta_i F + \varepsilon_t,$$

Variable	(-1,0)		(-1,+1)	
	Before	After	Before	After
Intercept	-0.010	-0.010	-0.009	-0.009
	-(0.62)	-(0.62)	-(0.47)	-(0.47)
Market to book	-0.025	0.001	-0.021	0.000
	-(3.17)[a]	(0.38)	-(2.44)[b]	(0.15)
NII pct TOI [1]	-0.009	-0.122	-0.059	-0.121
	-(0.20)	-(2.74)[a]	-(1.17)	-(2.49)[b]
Relative Deal size	0.058	0.021	0.068	0.021
	(3.11)[a]	(1.20)	(3.33)[a]	(1.10)
Return on equity	0.001	0.002	0.001	0.002
	(1.26)	(2.45)[b]	(1.12)	(2.41)[b]
DUS*	0.098	0.017	0.056	0.021
	(5.17)[a]	(1.22)	(2.68)[a]	(1.38)
N	48		48	
F-value	7.22		4.76	
Adjusted R^2	0.57		0.44	
AIC	-3.98		-3.80	

The sample here consists of 100 bancassurance deals announced between 1990 and 2006 where the bidder is a banking firm, excluding deals where the targets are insurance agencies. The unavailability of accounting or deal specific data for some companies/deals produces a final sample of 48 deals. The cumulative abnormal returns are taken from the market model, where market risk is represented by the pertinent wide market index. The figures represent coefficient estimates, while those in brackets indicate t-values (White errors).

CAR stands for the bidder cumulative abnormal returns, α is the constant, D_B and D_A is an interaction dummy variable used to assess the relative importance of the determinants *F* before and after the FSMA respectively, while *F* represents the exogenous factors listed in the first column of the table.

* DUS is the dummy taking into account U.S. bidders.

[1] NII pct TOI represents the ratio of non interest income to total operating income.

a/b/c denote statistical significance at the 1%, 5% and 10% level.

The results for bank bidders are almost identical to the results from the whole sample (Table 5.1), verifying the previous findings. In addition, the results on the shifts in the determinants before and after the FSMA, as presented in Table 5.4, are in line with the results for the pre- and post-FSMA determinants of the whole sample presented in Table 5.2[80].

The extant literature on the bank-insurance interface suggests fundamental differences in the risk-return profiles of banks when the latter combine with insurance

[80] It is important to note here that the similarities in the determinants of the whole sample versus the bank-insurance sample might be caused by the fact that the two underlying samples are predominantly consisted from the same companies. This could be caused by unavailable accounting data for insurance companies.

brokers/agents[81]. Following the empirical analysis of chapter 4, the determinants of CARs from these cases are examined separately and the respective results are presented in Table 5.5 below.

Table 5.5. Determinants of bank-insurance agency deal excess returns

$$CAR_t = \alpha + \sum \beta_i F_i + \varepsilon_t,$$

Variable	**Model 1**	
	(-1,0)	(-1,+1)
Intercept	-0.020	-0.025
	-(0.41)	-(0.45)
Market to book	0.009	0.014
	(1.18)	(1.68)[c]
Leverage	0.001	0.001
	(0.98)	(0.52)
NII pct TOI	-0.017	-0.002
	-(0.51)	-(0.07)
Return on equity	0.000	-0.001
	-(0.75)	-(0.96)
DDOM*	0.010	-0.003
	(0.23)	-(0.07)
DUS*	-0.002	0.014
	-(0.07)	(0.53)
DFSMA*	0.002	0.007
	(0.38)	(1.05)
N	86	86
F-value	0.84	0.63
Adjusted R^2	-0.01	-0.03
AIC	-4.80	-4.56

The sample here consists of 90 bancassurance deals announced between 1990 and 2006 where the targets are insurance agencies. The unavailability of accounting or deal specific data for some companies/deals produces a final sample of 86 deals The cumulative abnormal returns are taken from the market model, where market risk is represented by the pertinent wide market index. The figures represent coefficient estimates, while those in brackets indicate t-values (White errors).
CAR stands for the bidder cumulative abnormal returns, α is the constant, F represents the exogenous factors listed in the first column of the table.
* DDOM is the dummy taking into account domestic deals, DUS is the dummy taking into account U.S. bidders and DFSMA is the dummy variable taking into account deals that were announced after the passage of the Financial Services Modernization Act (1999).
a/b/c denote statistical significance at the 1%, 5% and 10% level.

It is a notable fact that the all the coefficients of the determinants of excess returns around bancassurance deals where the targets are insurance agencies are insignificant. The market does not seem to differentiate its reaction around this type of deals

[81] See the results section of chapter 4 pp. 88 to 89 for further elaboration on this matter.

depending on the characteristics of the bidder and/or other deal characteristics. One interpretation for this result could be that the market does not value such combinations, something that is consistent with the results of the event study analysis in chapter 4, where bidders in bank-insurance agency/brokerage partnership announcements exhibited insignificant excess returns. The decomposition of the determinants of this type of deal into pre- and post-FSMA does not yield any significant results either[82]. In particular, Looking at the determinants of the 2-day [-1 0] CARs all the coefficients are insignificant except for the market to book ratio which becomes marginally significant following the FSMA. However, this ratio does not remain important for the 3-day [-1 +1] CARs, where only the return on equity is marginally significant for deals that take place after the Act.

5.5. Empirical Findings: Discussion and Implications

The results of the analysis are of significant importance for bank and insurance company managers, investors and regulators alike. The first notable finding is the importance of non-interest income generated by bidders before the announcement. The ratio of non-interest income to total operating income is an important performance measurement for a banking company. It indicates the contribution that fees are making to total revenue. The last decade has witnessed a rapid growth in the relative importance of fees in banking revenue as the lines between financial firms are blurring. The analysis of the determinants of both the whole sample and the bank-bidder sample, points to a negative relation between this ratio and excess returns. This is expected for two main reasons. First, the more diversified in terms of off-balance sheet income an institution is prior to the announcement, the lower the impact of the newly announced deal on the firms' income structure and, consequently, the lower the market reaction. Second, the market might be penalizing institutions that are already generating a steady flow of non-interest income for over-diversifying or, in other words, over-relying on fee-generating activities. The latter argument is in line with Stiroh (2006) who finds that the degree of bank non-interest income share is associated with higher market betas and risk, while it is not associated with stock returns. In essence, he finds no benefit stemming from the risk-return trade-off from non-interest activities and suggests that U.S. banks may have become overexposed to

[82] The results are not presented here but are available upon request.

off-balance sheet income. The above result is also consistent with Stiroh and Rumble (2006) and Mercieca, Schaeck and Wolfe (2007) who report that increased reliance on non-interest income is associated with reduced risk adjusted performance. On the other hand, Baele, De Jonghe and Vander Vennet (2007) report a positive relation between non-interest income share and a market based measure of potential returns as well as market beta of banks, and a negative relation between non-interest income share and bank total and idiosyncratic risk. However, the relationship between non-interest income and total or idiosyncratic risk is found to be non-linear, where after a specific point, it becomes positive. The initial difference in their results might well be related to the scope of their sample which is constrained to European banks, which have a longer track record in these activities, and/or to the fact that they do not use a risk-adjusted measure of returns. More specifically, if they used a risk-adjusted measure of returns, the positive relation between total risk and non-interest income share that appears after a specific point, could trigger a negative impact on the relationship between risk-adjusted returns and non-interest income share.

The second main finding is the importance of the relative deal size or, in other words, the ratio of the value of the deal to the market value of the bidder. A strong positive relation is revealed between this variable and excess returns. Taking into consideration the fact that this ratio is a measure of scale economies that can be achieved via the combination of the two entities, the results show that the market anticipates more financial benefits from mergers or acquisitions of larger scale. This is somewhat consistent with Fields, Fraser and Kolari (2007a) who examine the determinants of bidder excess returns from 36 bancassurance mergers between 1997 and 2004. Among other control variables, they find a positive and significant relationship between excess returns and economies of scale, as measured by the ratio of target total assets to bidder total assets[83]. In addition, the results are in line with Chen, Li, Moshirian and Tan (2007) who report a positive relation between the relative size of deals and bidder excess returns around the announcement of 42 European bancassurance deals[84]. They conclude that the market anticipates more synergy to be created from large scale bank-insurance deals. Another study by Cybo-

[83] The authors also use the ratio of target market value to bidder market value as an alternative measure of scale economies but find insignificant results.

[84] These 42 deals represent the sample examined in their event study analysis. Cross sectional analyses where accounting data and deal characteristics variables are involved, are often susceptible to reductions in the initial sample, due to the unavailability of such data for some companies. Nevertheless, the authors do not report the sample used in the cross sectional regressions.

Ottone and Murgia (2000) examines the determinants of excess returns for 46 mergers and acquisitions and find no relation between CARs and target firm size. Nevertheless, their event study sample included only 10 bank-insurance deals, while at the same time it is not reported if and how many of these cases are present in the cross sectional analysis. Furthermore, their measure of size is different to the one used in this empirical analysis as it does not take into account the size of the target in relation to the size of the bidder, and therefore it cannot be interpreted as a scale economies measure.

Another interesting outcome is the positive coefficient attached to the dummy that takes into account deals where the bidder is U.S. based. This corroborates the results from the event study analysis in chapter 4, where U.S. bidders were found to experience higher abnormal returns when compared to their counterparts from the rest of the world. In addition, this finding further enhances the validity of the previous results, given that the positive and significant relationship found here is above and beyond the possible effects from other factors that are considered simultaneously. In effect, the market is found to provide stronger support for deals lead by U.S. financial institutions, most likely due to the recent demise of the regulatory restrictions imposed on the interface between banks and insurance companies by the Glass-Steagall Act of 1933 and the Bank Holding Company Act of 1956. Nevertheless, this is in contrast with the results in the cross section analysis in Fields, Fraser and Kolari (2007a) who report an insignificant dummy variable for U.S. bidders.

Finally, another variable that is important in determining CARs is the dummy variable that takes into account deals that are driven by banks, or otherwise known as bank-insurance deals, as opposed to assure-banking initiatives. Despite earlier support for this type of deals, as suggested by the results in chapter 4, the coefficient of this variable in the multivariate framework is negative and statistically significant at 5% level. This in turn suggests that, controlling for other factors, the market does not favour bancassurance deals where banks take the lead. In particular, a bank driven bancassurance partnership announcement is associated with a negative 3-day cumulative abnormal return of 9.4%, holding other factors constant. This is not in line with the negative but insignificant bank bidder dummy variable coefficient reported in Fields, Fraser and Kolari (2007a).

Shifting our focus to the analysis of the determinants of pre- and post-FSMA deals, some interesting findings arise. It is evident that there is a considerable shift in

investor perceptions of bancassurance deals after the demise of the regulatory barriers between banks and insurance companies. Before the Act, deals are being valued based on estimates of bidder growth opportunities, the potential for scale economies and whether the deal was initiated by a U.S. financial institution. The importance of these variables might be related to the continuous efforts of companies and investors alike to lobby regulators for the repeal of the Glass Steagall Act and the Bank Holding Company Act. Therefore, at the time, large and/or U.S. bank-insurance deals reinforced the position of those in favour of financial deregulation, and hence, were welcomed by the market. Someone might at this point question the validity of the shift in the importance of the U.S. bidder dummy on the grounds of non-existence of bank-insurance combinations before the FSMA. Nevertheless, in reality the U.S. market was familiar with such deals before 1999, with the greatest example being the Citicorp-Travelers mega-merger in 1998[85]. Further analysis for this is provided in Broome and Markham (2000) who suggest that despite the regulatory restrictions, banks and insurers have always found ways to combine their operations. Following the passage of the Act, the relative importance of the aforementioned attributes fades away and estimates of the bidders' capacity for further functional diversification and profitability levels take the lead. The cause of this change can be reasonably justified. Once the regulatory barriers are removed, bancassurance deals are valued based on the acquiring institutions expected potential for synergies, as measured by their capacity in generating more fee income and their profitability. A number of studies have focused on the market reaction of financial institutions to the FSMA and the respective determinants of excess returns. Carow and Heron (2002) find that large investment banks and large insurance companies benefited from FSMA, whereas thrifts, finance companies and foreign banks lost value. Using a similar framework for insurance companies Neale and Peterson (2005) verify the positive effect of size. Similar results are also reported by Hendershott, Lee and Tompkins (2002). Their cross section results suggest that larger and better performing institutions benefit the most from the Act, because of their better position to achieve synergies by exploiting the newly available opportunities, allowed by the legislation. In summary, studies on the capital market reactions to the FSMA suggest that large and profitable companies should benefit from the legislation. Nevertheless, the results of these studies apply and

[85] A list of a number of these deals that are also present in the sample of the deals analysed here can be found in Table C.1 in the appendix.

are limited to the general market expectations from the removal of regulatory restrictions. It should be noted that individual deals are judged by the market based on the expected performance of the combined entity. To the best of our knowledge, this is the first time that the shift in the determinants of bancassurance deals before and after the FSMA is examined. As such, the results here are of significant importance with regards to bank-insurance combinations.

Moving on to the determinants of excess returns associated with bank-insurance agency/brokerage deals, the insignificance of the regression coefficients in all windows examined, reinforces the earlier univariate results in the previous chapter. The markets' unresponsiveness to these deals is also verified by the fact that none of the factors examined makes any difference in terms of the bidders' valuation around the announcement. In addition, the decomposition of the analysis of determinants into pre- and post-FSMA does not yield any significant results. One of the most discussed issues in the literature on financial conglomerates is that of the risk-return trade-off associated with the incursion of banks into non-banking activities. One of the activities frequently examined is insurance broking. Nevertheless, empirical evidence is rather mixed, with some studies reporting that bank combinations with insurance agents/brokers are more risky than combinations with life or property and casualty insurers (Boyd, Graham and Hewitt, 1993) and others reporting a favourable risk-return trade-off for mergers between banks and insurance agents/brokers (Boyd and Graham, 1988; Heggestad, 1975; Nurullah and Staikouras, 2008). The results here are not in line with either side of the existing evidence. Not only does the market ignore such deals but also disregards accounting measures and deal characteristics that could, as witnessed in other cases, steer expectations and consequently abnormal returns.

5.6. CONCLUSION

This chapter examines the determinants of excess returns experienced by acquiring firms around the announcement of bancassurance mergers. A cross section regression framework is employed, where the dependent variables are the cumulative abnormal returns experienced by the bidders in various time windows around the deals' announcements. The sample of deals consists of 210 bancassurance transactions, where 100 correspond to cases where banks bid for insurance companies, 20 cases where insurance companies bid for banks and 90 cases where banks bid for insurance

agencies. The results show a significant inverse relationship between non-interest income and bidder excess returns around bancassurance announcements, indicating that the market is penalizing institutions that are already more reliant on non-interest income before the deal's announcement. What is more, the greater the potential for scale economies for the combined entity, the more positive the excess return experienced by acquiring institutions. It is also found that deals where the acquiring institution is U.S. based are valued more favourably. In contrast to the results from the previous chapter, evidence from the multivariate analysis shows that controlling for other factors simultaneously, bank bidders lose value.

The decomposition of the sample into pre- and post-FSMA deals indicates a shift in the relative importance of the determinants of bidder abnormal performance. Investors value deals before the FSMA based on estimates of bidder growth opportunities, the potential for scale economies and whether the acquirer is a U.S. financial institution, possibly due to the continuous efforts of market participants to lobby regulators to remove the existing barriers between banks and insurance companies. In contrast, following the passage of FSMA, investors value bank-insurance partnership announcements based on estimates of the bidders' capacity for further functional diversification and their profitability levels. This indicates that with the regulatory barriers removed, bancassurance deals are valued based on true investor estimates of synergies through bank-insurance partnerships. Finally, consistent with the results of the previous empirical chapter, it is found that the market ignores bank combinations with insurance agents/brokers, as none of the factors capturing company and deal characteristics is significant.

So far, attention has been paid to the market reaction to bancassurance deals and further analysis has been carried out to gauge the impact of company and deal specific factors on bidder valuations. The results so far assert that bancassurance deals trigger significant trading movements, that affect the stock prices of acquiring institutions, and that the direction of these movements is based on careful investor evaluation of the potential of bancassurance strategies. A very important dimension of the phenomenon that is reflected in bidder returns – but not directly captured so far – is that of the risk element. As such, the next chapter looks into the changes in risk before and after bancassurance announcements by decomposing the latter into its total, market, interest rate and idiosyncratic components.

6. BANCASSURANCE DEALS: AN EMPIRICAL ANALYSIS OF THE EFFECTS ON RISK AND ITS DETERMINANTS

6.1. INTRODUCTION

The last two decades have witnessed a burgeoning of mergers and acquisitions in the financial services sector, most of which emphasized on product diversification. In contrast to the European financial services industry, that was liberalised in 1989 when the Second Banking Directive was implemented by all member states, the industry in the United States remained fragmented until 1999, due to concerns for increased risk from combining banking and non-banking activities. Specifically, regulation dating back to the 19th century constrained the geographical expansion of banks into other states as well as their ability to affiliate with investment banks, securities firms, and insurance companies. Due to these legal barriers[86], U.S. banks were unable to benefit from synergies through consolidation. The Second Banking Directive of 1989 in the European Union, followed by the Financial Services Modernisation Act of 1999 in the United States, have both allowed financial institutions to functionally diversify their operations by offering a broad range of financial services[87] under the same corporate umbrella. One of the main targets of regulators and policymakers is to maintain competitiveness within the financial services industry, while minimizing the risks of a systemic failure. However, investors are interested in high returns and low risk, while depositors, policyholders, and bondholders are more interested in minimizing firm-specific risk. As a result, the effect of bancassurance partnerships on the risk of financial institutions is an issue of paramount importance for all stakeholders. Despite this, the empirical literature on this subject is limited and offers mixed conclusions.

In the previous chapters, the reaction of the markets to bancassurance deals has been examined, with results pointing to significant bidder excess returns. Analysing the risk effects, in addition to the return effects of these mergers, is especially important, because there should be a trade-off between risk and return. Therefore, looking at the return effects in isolation would only provide a partial picture. To be more specific, it is possible that the bidder firm returns rise in response to the merger

[86] The majority of the barriers between financial institutions in the U.S. were imposed by the National Banking Act (1864), the Banking Act (1933), and the Bank Holding Company Act (1956).
[87] These include commercial banking, investment banking, insurance and other financial services.

announcement (as shown in chapter 4), but the firm trades off this higher return for a higher level of risk. Furthermore, the disaggregation of the sample of deals into those where the bidder is a bank versus those where the bidder is an insurance company, produced variations in abnormal returns. Similar variations were found when deals between banks and insurance agencies were considered. Further tests were carried out to capture the firm and deal specific factors that drive abnormal returns, with the degree of diversification prior to the merger announcement being one of the most important factors. In effect, one question remains unanswered. Do bancassurance deals affect the risk of acquiring institutions?

This chapter attempts to contribute to the literature on financial conglomerates, and more specifically, on the risk effects of bank-insurance combinations, which so far has been constrained by data limitations and methodological issues[88]. The research questions that are addressed here are the following: Do bancassurance deals affect the total, market and idiosyncratic risk of acquiring institutions, and if yes, to what direction? What kind of factors determine the risk attributes of firms that enter into bancassurance deals, and do these relationships change following the deals? In this respect, a risk decomposition methodology is employed to assess the impact of bancassurance partnerships on total risk and its systematic and idiosyncratic components, while cross section regressions shed light on the factors affecting the risk components.

The results show that bank-insurance partnerships do not significantly affect the total and idiosyncratic risk of bidders, but systematic risk is increasing following the deal announcement, or completion. Consistent with the results of the previous chapters, when the sample is split based on the nature of the bidder (bank vs. insurance company), or target (insurance company vs. insurance agency), some interesting results arise. For example, insurance bidders exhibit greater exposures to total and market risk than bank bidders. What is more, when banks combine with insurance agencies, their equity becomes exposed to considerably higher systematic risk, than in cases of bank acquisitions of insurance underwriters, and vice versa. Furthermore, the risk decomposition reveals that banks are much more exposed to firm-specific risk than to market risk, while insurance companies are relatively equally exposed to both types of risk. Surprisingly, the firm-specific component of

[88] A further analysis of the methodological issues being present in previous studies is provided section 2.

banks that bid for insurance agencies accounts for around 80% of their total risk. The analysis of the determinants of risk suggests that it is not diversification into insurance activities that drives market betas up, rather it is the increased scale of the institutions due to the merger/acquisition that has an impact on betas. What is more, bank acquisitions of insurance agencies are superior to bank acquisitions of insurance underwriters, given that the negative and significant relationship between non-interest income share and unsystematic risk fades away following bank acquisitions of insurance companies, yet remains significant after bank acquisitions of insurance agencies.

In what follows, section 2 reviews the extant literature on the risk issues related to financial conglomerates and discusses the empirical findings. Section 3 presents the sample and the employed methodological framework. The empirical findings are presented and analysed in section 4. Finally, section 5 concludes this chapter.

6.2. LITERATURE REVIEW

The question of whether financial conglomerates outperform their more specialized counterparts in terms of their risk-return attributes is an issue of ongoing academic research. Generally, proponents of diversification (Benston, 1994; Saunders, 1994)[89] claim the existence of synergies through cost and revenue economies of scope coupled with reduced bankruptcy risk due to the imperfect correlations of revenue streams from different functions. On the other hand, several arguments against diversification exist, with the most prominent one considering diversification at the company level as redundant, given that investors can diversify away company specific risk by constructing efficient portfolios at a lower cost. Consistent with that notion, Levy and Sarnat (1970) employ portfolio theory to prove that in the absence of synergistic gains and capital cost economies[90], the diversification benefits that are stemming from such mergers cannot produce economic gains in a perfect capital market. Moreover, critics of diversifying M&As also emphasize on the risk of driving a company and its management outside their core competency.

[89] A detailed analysis of the arguments for and against diversification and financial conglomerates can be found in chapter 3.

[90] The term capital cost economies is used by the authors in order to describe cost savings that stem from better access to capital markets and reduced lender's risk following diversifying mergers.

Despite the various methodological avenues followed in the extant literature, the evidence is mixed and the question still remains. This is also evident when one looks at the surveys of the academic literature on this subject. Specifically, Kwan and Laderman (1999) review the literature on the effects of combining banking and nonbank financial activities on bank risk and return, and find that securities activities, insurance broking, and insurance underwriting are riskier but more profitable than banking activities and provide the potential for diversification. Similar conclusions are drawn in the survey of Berger, Demsetz and Strahan (1999), where it is suggested that consolidation can increase profit efficiency and help diversify the portfolio risks of financial institutions. In the European front, Berger, DeYoung and Udell (2001) review the literature on the effects of consolidation on the efficiency of the financial services industry. They conclude that there is significant potential for efficiency gains through consolidation that is mainly attributable to risk diversification, yet most of it is offset by the existence of consolidation barriers[91]. Furthermore, no consensus is reported in the review of the literature provided in Saunders and Walter (1994). They review 18 studies on whether nonbanking activities reduce bank risk and report that nine studies answer yes, six answer no, while three are inconclusive.

In addition to the abovementioned surveys, there exists some empirical work on the subject, yet the findings are limited due to problems such as data unavailability, or methodological issues[92]. In an early study, Heggestad (1975) employs variance/covariance analysis in order to evaluate the risk-return characteristics of banks and nonbanks and the correlations among them, in an attempt to shed light on the risk effects of combining banks with nonbanks. The analysis is conducted at the industry level between 1953 and 1967. His findings suggest that many nonbank activities are safer than banking and that there are potential diversification benefits in some nonbanking operations. Nevertheless, considerable care must be exercised in extrapolating the above conclusions to individual firms as the analysis is performed at the aggregate industry level. In contrast to the variance/covariance analysis, others have employed a combination of accounting and market data in order to examine the relation between BHC risk and diversification into nonbanking. For example, Boyd and Graham (1986) use accounting data and multiple regression analysis, where risk

[91] The main consolidation barriers identified are distance, language, culture and implicit rules against foreign institutions.

[92] A more detailed analysis of these issues is provided in the following paragraphs.

and return are used as dependent variables, to examine the relationship between the former and measures of nonbank activity. They find no significant relationship between either profitability or risk and nonbank activity. However, when the sample is split into two sub periods (1971-1977 and 1978-1983) they find a strong positive correlation between nonbank share and risk in the first sub period. It is suggested that this is because BHC regulation was considerably tightened towards the end of the sample period. Using the same methodological approach, Brewer (1989) complements Boyd and Graham's (1986) study by employing market data in addition to accounting data, on a sample of 106 BHCs between 1978 and 1986. He finds no evidence of high BHC risk associated with nonbank activity, but reports a strong negative relation between risk and nonbank activity for the high risk BHCs. Using a similar framework on a sample of 40 BHCs between 1979 and 1983, Brewer, Fortier and Pavel (1988) employ OLS regressions of variance of stock returns and return on assets on the proportion of assets devoted to nonbank activity, as well as variance analysis and hypothetical mergers. They report a negative relation between the proportion of nonbank activity and BHC risk.

Despite the considerable effort invested, all the above studies are exposed to two shortcomings. First, the nonbank activities are limited to those permitted during the sample period and thus it would not be wise to reflect the conclusions drawn from them onto nonbanking activities that were impermissible at the time. Second, the risk from any particular activity cannot be isolated as the results from those studies only hold for aggregated nonbanking activities.

In order to account for these drawbacks, a number of studies have used merger simulation techniques. For example, Boyd and Graham (1988) use accounting and market data in order to analyse the impact of a hypothetical expansion of BHCs into nonbanking on BHC risk, between 1971 and 1984[93]. In terms of the methodological approach, they employ merger simulations and compare the results with unmerged firms. Their results suggest that combinations between BHCs and securities firms, real estate developers and property and casualty (P/C) insurance increase the volatility of returns and the risk of failure. On the other hand, they find that the expansion of BHCs into life insurance reduces both the volatility of returns and the risk of failure.

[93] Their sample involves 146 BHCs, 30 life insurance companies, 15 P/C insurance companies, 5 insurance brokers/agents, 11 securities firms, 31 real estate development firms and 11 other real estate firms.

In contrast, Laderman (1999) also generates hypothetical mergers between a large sample of BHCs and various nonbanking firms in the period 1979-1997, and finds that either life/ insurance underwriting, P/C insurance underwriting or securities underwriting, reduce the probability of bankruptcy of the BHC. In the U.K. front, Genetay and Molyneux (1998) analyse the impact of an expansion of banks into mutual and proprietary life insurance on bank risk, between 1988 and 1992. Merger simulations reveal mixed evidence on risk, with significantly lower probabilities of failure but insignificant changes in return on assets volatility for bancassurance combinations. At this point, it is worth noting that the practice of randomly selecting pairs of companies without controlling for their size may inevitably lead to hypothetical pairs of large nonbanks and small BHCs. In this case the risk/return profile of the merged institution would not necessarily represent a high-quality combination in terms of risk and return. This setback is accounted for in Boyd, Graham and Hewitt (1993) and Lown, Osler, Strahan and Sufi (2000). The first, expand the previous study (Boyd and Graham, 1988) by substantially increasing the sample period and the number of companies analysed[94]. Not only that, they address the issue of the possibility of inappropriate pair selection by accounting for various different portfolio combinations for each bank-nonbank pair. One of the major advantages of this approach is that it facilitates the evaluation of the risk minimising bank-nonbank asset combinations. The results suggest that mergers between BHCs and life or non-life insurance firms can be risk reducing when the appropriate portfolio weight combinations are chosen, whereas mergers with either securities or real estate companies are likely to increase BHC risk. In a similar framework, Lown, Osler, Strahan and Sufi (2000), simulate mergers between pre-selected pairs[95] of the 10 largest BHCs and the 10 largest companies in the insurance and securities business, using financial data from 1984-1998. They conclude that mergers between bank holding companies and either securities firms or property and casualty firms would likely modestly raise BHC risk. However, they find that mergers between BHCs and life insurance companies lower the risk of both firms due to diversification benefits. Nevertheless, even after correcting for the problems identified in Brewer

[94] The sample period is 1971-1987 and the data sample includes 141 BHCs, 30 life insurance companies, 16 P/C insurance companies, 20 insurance brokers/agents, 27 securities firms, 69 real estate development firms and 67 other real estate firms.

[95] This practice represents a different way of alleviating the random pair problem identified in Boyd and Graham (1988).

(1989) and Boyd and Graham (1986), merger simulation studies fail to account for three factors that may understate their results and, consequently, the conclusions drawn from them. First, they only consider mergers between one BHC and one nonbank firm and in this way ignore further possible diversification benefits from BHC combinations with more than one nonbanking firm. Second, the random selection of BHC-nonbank pairs does not necessarily reflect reality, where managers carefully select target companies based on their organisational and financial characteristics. Last but not least, serious biases in their results and conclusions may arise from the fact that M&A costs and acquisition premia are disregarded, even though they can be substantial. The first issue is addressed in studies that used a portfolio approach. In this respect, Allen and Jagtiani (2000) create synthetic universal banks[96] in order to discern the impact of securities and insurance activities on bank total and systematic risk as well as on bank risk premiums between 1986 and 1994. Using market data, they construct universal bank portfolios that consist of one bank, one securities firm and one insurance company, by value-weighting their respective monthly returns. The sample consists of 9 representative[97] companies from each industry, which are combined to generate 729 universal banks. They find that nonbank activities reduce total risk but increase systematic market risk. Both securities and insurance activities have no significant effect on market risk premiums of universal banks. Moreover, while the interest rate risk premiums seem to be lowered by securities activities, they are not affected by insurance activities. Complementing their results, Estrella (2001), employs an option pricing approach in order to discern the potential diversification gains from BHC combinations with nonbanks. The sample incorporates the 10 largest and 10 smallest BHCs as well as the 10 largest life and P/C insurance firms, security brokers and non-financial firms during the period 1989-1998. Using both accounting and market data he finds that both banking institutions and insurance companies can experience diversification benefits by converging.

Despite the considerable effort that has been invested in the above studies, the unavailability of actual bank-insurance combinations and the indirect manner of

[96] The term synthetic here is used by the authors to describe universal banks that do not exist, but are rather created for the purposes of their study. A "synthetic universal bank" is effectively a portfolio consisting of one depository institution, one securities firm, and one insurance company.

[97] The nine largest companies from each industry are selected. However, this has many implications on the reflection of the results on other possible size combinations.

analyzing the phenomenon, leaves one question. How applicable are the results from simulation studies to actual bank-insurance combinations? The emergence of bank-insurance combinations and financial conglomerates in recent years, has paved the way for a number of studies that have produced more reliable results, based on actual deals or hybrid companies.

For instance, Nurullah and Staikouras (2008) deal with the issues affecting simulation studies by analysing actual bank-insurance combinations during the period 1990 to 1999. Specifically, they construct measures of profitability, risk and creditworthiness at the firm and industry level. Using these measures they examine the pre- and post-merger risk-return effects of European banks' diversification into life and non-life insurance underwriting, as well as into insurance broking businesses[98]. The analysis at the aggregate industry level reveals that life and non-life insurance underwriting are riskier than banking, while insurance broking has higher returns and does not affect bank creditworthiness. On the other hand, the results of the analysis of synthetic bank-insurance structures show that life and non-life insurance significantly increase bank return volatility and the probability of bankruptcy. They conclude that best candidate for bank expansion is insurance brokerage. Another strand of research examines the phenomenon by looking at the relation between measures of bank diversification and performance and/or risk[99]. In these cases diversification is not always found to be beneficial for financial institutions. For example, Stiroh and Rumble (2006) consider the impact of diversification on the performance of 1816 U.S. Financial Holding Companies (FHCs) in the period 1997 to 2002. By employing cross section and panel regressions they find that the increased risk adjusted performance across FHCs due to diversification benefits is offset by the increased exposure to non-interest activities. The results also suggest that increasing the diversification levels within FHCs does not bring improvements in risk adjusted performance. Finally, they report a negative relation between non-interest income and risk adjusted performance[100]. Using a similar framework and market data for 635 U.S.

[98] Their sample consists of 45 banks, 40 life insurance firms, 12 non-life insurance firms and 11 insurance brokers.

[99] It is worth noting that these studies are a re-invention of early studies that used the same methodology. The recent studies however, do not suffer from the two drawbacks that affected the early works. See paragraph 2 in page 135 for further details.

[100] The paper also examines the impact of diversification on regular performance measures such as ROE, ROA and the respective standard deviations of these ratios. A significant relation is only revealed when standard deviations are used as dependent variables. Two possible issues/biases are identified by the authors. First, the measure of diversification (DIV) and the share of net operating

BHCs between 1997 and 2004, Stiroh (2006) examines the relationship between non-interest income and equity market measures of BHC return and risk. Specifically, he uses pooled cross-section OLS regressions of stock returns, total and idiosyncratic risk and bank betas on proxies for non-interest share, size and the equity to assets ratio He finds an insignificant relation between bank mean return and non-interest activities. On the other hand, his results point to a positive correlation between non-interest income share and total, market and idiosyncratic risk. An interesting feature of his results is the non-linear relationship between non-interest share and total and idiosyncratic risk. In effect, it is found that total risk can be minimized when non-interest share is between 18% and 27%, while idiosyncratic risk is minimized as long as this share remains under 16%. Nonetheless, the author concludes that U.S. institutions are already intensively diversified and cannot benefit at the above levels. Complementing the above studies, Stiroh (2004) provides further evidence against diversification by analysing the U.S. banking industry in the period 1984 to 2001. His methodological approach involves two steps. The first consists of an analysis of the fluctuation in non-interest income and net interest income over time and the examination of the volatility of net operating revenue growth. The second involves a correlation analysis between net interest income and non-interest income across time and sample of banks. Finally, OLS regressions of bank net income growth and ROE on non-interest share proxy and other variables are used to discern the impact of diversification on profitability. The results from the analysis at the industry level show that while the volatility of bank revenue has dropped overtime, this decline was due to the reduction in the volatility of net-interest income. On the other hand, the volatility of non-interest income is found to have increased during the same period, together with the correlation between net and non-interest income. The author suggests that banks' increasing focus on cross-selling might expose different lines of their business to the same shocks. Likewise, in the European front, diversification is found to be detrimental for small banks in Mercieca, Schaeck and Wolfe (2007), who conclude that these institutions should rather focus on their core competencies. They use OLS regressions to gauge the relationship between measures of profitability and risk and the degree of diversification for 755 small European banks between 1997 and

revenue from non-interest sources (SHnon) are simultaneously used as independent variables in the regressions. The problem lies in the fact that DIV is a function of SHnon. Second, similar issues arise through the use of non-interest income and net income.

2003. This study differs from others in that diversification measures are constructed using a Herfindahl Hirschmann Index (HHI) that accounts for the spread between non-interest income and net-interest income. In addition, another two sets of HHI indexes are constructed to account for diversification across the components of the two sources of income[101]. The results point to a negative relation between non-interest income and profitability and Z-scores[102], respectively. Complementing the above results, Lepetit, Nys, Rous and Tarazi (2008) examine the degree of diversification of 734 banks established in 14 European countries between 1996 and 2002. They employ OLS regressions of both accounting- and market-based measures of risk on a set of variables capturing the degree of bank income diversification. Their results reveal a significant relationship between the degree of income diversification and both accounting- and market-based measures of risk. Further tests reveal that this relationship is stronger for smaller banks and that in all cases risk is more positively correlated with fee-based activities than with trading activities.

Conclusions drawn from U.S. studies are somewhat in line with those in Baele, De Jonghe and Vander Vennet (2007). Their study focuses on 255 banks from 17 European countries. They look at the relationship between bank risk – which is decomposed into its market and idiosyncratic components – and non-interest revenue share[103], between 1989 and 2004. This is accomplished by decomposing risk into its systematic and idiosyncratic parts and then employing OLS regressions of bank Tobin's Q, betas, total and idiosyncratic risk on measures of asset and revenue diversification. They find that non-interest revenue share is positively associated with systematic risk, but contrary to Stiroh (2006), non-interest revenue share is found to be negatively related to idiosyncratic and total risk. Further scrutiny however, reveals that the latter relationship is non-linear with a shift in its direction occurring when non-interest revenue share exceeds 22% and 36% for total and idiosyncratic risk, respectively. The overall consensus from the literature on risk seems to be in line with expectations; although there is potential for risk reduction via non-interest income,

[101] Diversification within non-interest income is measured as an HHI index of the spread between commission revenue, trading income and other operating income, whereas diversification within net-interest income is measured as an HHI index of the spread between income from mortgages, hire purchase and leases, loans to group companies, associates, governments, municipalities and corporations and other loans.

[102] Z-scores are used in the literature as a measure of insolvency risk. Higher Z-scores indicate improved insolvency risk.

[103] Non-interest revenue share is defined as the ratio of non-interest income to total operating income.

this is exhausted at a relatively low level, after which risk increases. In essence, banks that rely heavily on non-interest sources of income are more exposed to market movements or economy-wide shocks.

Another important question on financial conglomeration is whether diversification per se has a positive impact on the market valuations of institutions. One study that tries to address the above question is Laeven and Levine (2007). They use Tobin's Q of 836 banks from 43 countries over the period 1998-2002, and benchmark it against the Tobin's Q the same banks would have if they were broken into their component firms, each one being a separate, specialized institution. What is more, they employ regressions of excess value and Tobin's Q estimates on diversification proxies and other control variables. Their results suggest that diversification of bank based financial services firms is value destroying, since the market values of banks engaged in multiple activities are lower than the values those banks would have, if broken up into specialized firms. They also report a negative relation between diversity measures and excess and Q values. Using a similar methodological approach, Schmid and Walter (2009) extend the above study by analysing 664 U.S. financial firms between 1985 to 2004. Their results are consistent with Laeven and Levine (2007), in that they also show a substantial and persistent conglomerate discount in financial firms. Further tests by the authors verify that it is diversification that causes the discount and not that troubled firms choose to diversify in other areas. Interestingly, when combinations between banking and insurance or banking and investment banking are considered, they are found to offer a significant valuation premium. On the contrary, different conclusions are drawn in a similar analysis conducted in Baele, De Jonghe and Vander Vennet (2007), who consider a European bank sample. Their results suggest that diversified institutions are associated with higher return potential. At this point it is worth noting that similar discrepancies were observed in the results of U.S. and European studies with regards to risk. As the authors suggest, this could be due to the fact that diversified European banks have been around for a longer period of time and have committed a considerable amount of resources in making diversification work.

6.3. DATA AND METHODOLOGY

This chapter considers the effect of bank-insurance partnerships on the risk of acquiring institutions. In order to get further insight into these risk effects, total risk is decomposed into its systematic and unsystematic components. The presence of risk shifts is examined for the periods pre- and post-announcement, or the completion of the deals, respectively. Finally, a cross section analysis is employed, where the contribution of a selection of accounting variables[104] on total, systematic and idiosyncratic risk, is analysed. Given the nature of this empirical investigation, the sample of deals employed in the previous chapters is reconsidered in the current framework. In particular, 210 bancassurance deals announced between 1990 and 2006 are used, where 100 cases represent bank bids for insurance companies, 20 cases correspond to insurance firms targeting banks and finally 90 cases represent banks targeting insurance agents/brokers.

Individual daily stock prices for each acquiring institution and daily prices for the index where each bidder is traded are collected from Thomson Datastream, for a period of 251 trading days before and 250 trading days after, relative to each announcement/deal completion. Logarithmic returns are then calculated for each stock and index. Finally, accounting variables for the second-step cross section analysis are obtained from the Thomson Financial database and consist of year-end financial statement data for the periods before and after the announcement – completion of the deals, respectively.

The empirical tests in this chapter are carried out in two steps. First, a decomposition of the bidding firms' total risk into systematic and unsystematic risk components is employed, in order to examine the possible changes in each of these risk categories between pre- and post-announcement/completion periods. A methodological framework that suits the purpose of this chapter, and therefore is adopted here, is the decomposition approach used in Aharony, Saunders and Swary (1988) and Yourougou (1990). Such a framework is used to express the equities' total risk as the sum of systematic and unsystematic components. The mathematical formulation of the equities' decomposition of total risk takes the following form:

[104] These variables are designed to capture the effects of diversification, risk, profitability and size, before and after the bancassurance announcements and deal completions.

$$\sigma_{R_i}^2 = \beta_{M_i}^2 \sigma_{R_m}^2 + \sigma_{\varepsilon_i}^2, \tag{6.1}$$

where $\sigma_{R_i}^2$ is total risk, $\beta_{M_i}^2 \sigma_{R_m}^2$ is the market component of total risk and $\sigma_{\varepsilon_i}^2$ is the idiosyncratic risk component for each firm in the sample. For each sample subset[105] and relevant period, total risk is defined as the average variance of all stock returns, while market risk is defined as the average of the individual market risk components. The market risk beta coefficients and the idiosyncratic risk components for each firm are obtained by employing equation (6.2) for each company in the selected sample subset. The betas are then squared and plugged in equation (6.1), while the average residual variance is used as a measure of idiosyncratic risk[106].

$$R_{i,t} = \alpha + \beta_{M_i} R_{M_{i,t}} + \varepsilon_{i,t}, \tag{6.2}$$

where, $R_{i,t}$ is the return of stock *i* at time *t*, α is the intercept, β_{M_i} the market coefficient, $R_{M_{i,t}}$ the return of market index *i* at time *t* and $\varepsilon_{i,t}$ the error term with the usual properties. The above equations are estimated for the pre-announcement period (day -250, day -1) and the post-announcement period (day +1, day +250) separately. As a robustness check measure, the estimations are also employed using the pre- and post-deal completion periods.

The second stage of the empirical analysis assesses the determinants of bidder risk before and after the announcement/completion of bank-insurance mergers using cross-sectional data[107]. Specifically, this involves an OLS regression of the total, systematic and unsystematic risk estimates on accounting variables. The analytical specification of the model is of the following general form:

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[105] The sample of deals is separated into four main subsets. The subset containing all deals excluding those between banks and insurance agencies (All deals), the subset containing bank bids for insurance companies (Bank-Insurance), the subset containing Insurance company bids for banks (Insure-Banking), and finally the subset comprising of bank bids for insurance agencies (Bank-Insurance agency).

[106] Given that $R_{M_{i,t}}$ and $\varepsilon_{i,t}$ in equation (6.2) are orthogonal by construction, equation (6.1) is derived by taking the respective variances in equation (6.2). The derivation of this can be found in appendix E.

[107] It is important to note here that due to the unavailability of insurance company data on Thomson Financial, the sample of insurance companies that bid for banks is not included in the cross section analysis.

$$Y = X\beta + \varepsilon \tag{6.3}$$

where, Y represents the endogenous variables of the models which can be total risk ($\sigma^2_{R_i}$), market beta (β) and unsystematic risk ($\sigma^2_{\varepsilon_i}$); X is a vector of predetermined exogenous factors; β is a vector of parameters to be estimated; and ε is the error term with the usual properties.

To the best of our knowledge, this is the first time a risk decomposition framework is employed in order to assess possible changes in total risk and its market and idiosyncratic components, caused by bancassurance deal announcements. In addition, this is also the first time a cross sectional framework is employed – within the context of bank-insurance mergers – with the aim of examining the relationship between risk components and a number of accounting proxies as well as possible shifts in the former relationships, before and after the deals' announcement and completion.

6.4. EMPIRICAL FINDINGS

6.4.1. RISK DECOMPOSITION

This section attempts to gauge the impact of bancassurance merger announcements on the risk profiles of acquiring institutions. In particular, the presence of shifts in total, market and unsystematic risk before and after the deal announcements and completions is evaluated. First, the results from all bank-insurance deal announcements are presented and analysed. Second, bank-driven deals and insurance-driven deals are isolated and examined independently in order to assess any possible variations in risk adjustments before and after these events, respectively. Finally, the results from deals where the target is an insurance agent/broker are assessed. The distinction between deals where the target is an insurance company vs. those where the target is an insurance agent/broker follows the structure of the previous empirical chapters[108]. In particular, the literature on the interface between bank and insurance companies points to significant differences in the risk-return profiles of banks when they combine with insurance agencies/brokers, as opposed to combining with insurance firms (Boyd, Graham and Hewitt, 1993; Nurullah and Staikouras, 2008). Failing to differentiate between deals where the target is an insurance underwriter – exposed to underwriting risks – and deals where the target is and insurance agent/broker – where underwriting risk is not present – could lead to unrealistic or biased results. Given that the market measures of risk are expected to vary across combinations offering distinct risk-return profiles, bank bids for insurance companies and those for insurance agencies are separated, while the results are presented in isolation, respectively.

Table 6.1 contains the results of the risk decomposition for all acquiring institutions in bancassurance deal announcements. Panel A presents the decomposition of total return risk of acquiring firms in the period before the deal announcement, while panel B deals with the risk decomposition for the period following the deals' announcement. The post-announcement changes in the risk and other variables are presented in panel C. The variables/statistics are presented in the first column, while each of the subsequent columns deals with the results from the different sample subsets, as analysed above.

[108] See section 4 in chapter 5.

Table 6.1. Decomposition of total return risk of acquiring institutions (announcement)

	All Deals	Bank-insurance deals	Insure-banking deals	Bank-insurance agency deals
Panel A: period before announcement (day -250 to day -1)				
$\sigma^2 R_i$	4.007	3.985	4.130	3.852
	(100%)	(100%)	(100%)	(100%)
$\beta^2\sigma^2_{Rm}$	1.427	1.316	2.052	0.646
	(35.62%)	(33.04%)	(49.68%)	(16.78%)
$\sigma^2_{\varepsilon i}$	2.580	2.668	2.078	3.206
	(64.38%)	(66.96%)	(50.32%)	(83.22%)
$\overline{\beta}$	0.819	0.802	0.911	0.589
$\sigma\beta$	0.423	0.417	0.459	0.386
$\overline{R}_i$	0.041%	0.041%	0.041%	0.042%
$\overline{R}_m$	0.015%	0.014%	0.017%	0.008%
σ^2_{Rm}	1.646	1.613	1.832	1.536
Panel B: period after announcement (day +1 to day +250)				
$\sigma^2 R_i$	4.080	3.834	5.470	3.729
	(100%)	(100%)	(100%)	(100%)
$\beta^2\sigma^2_{Rm}$	1.506	1.239	3.012	0.743
	(36.91%)	(32.32%)	(55.05%)	(19.93%)
$\sigma^2_{\varepsilon i}$	2.574	2.595	2.459	2.986
	(63.09%)	(67.68%)	(44.95%)	(80.07%)
$\overline{\beta}$	0.857	0.846	0.922	0.704
$\sigma\beta$	0.386	0.369	0.480	0.491
$\overline{R}_i$	0.033%	0.036%	0.019%	0.039%
$\overline{R}_m$	0.025%	0.026%	0.017%	0.028%
σ^2_{Rm}	1.721	1.669	2.015	1.375
Panel C: Changes in risk pre- and post-announcement[1]				
$\Delta\sigma^2 R_i$	0.073	-0.151	1.340	-0.123
% change	1.83%	-3.79%	32.45%	-3.19%
$\Delta\beta^2\sigma^2_{Rm}$	0.079	-0.077	0.959	0.097
% change	5.51%	-5.87%	46.76%	15.03%
$\Delta\sigma^2_{\varepsilon i}$	-0.005	-0.074	0.381	-0.220
% change	-0.21%	-2.77%	18.32%	-6.86%
$\Delta\overline{\beta}$	0.038	0.043	0.010	0.115[a]
% change	4.69%	5.41%	1.14%	19.60%
$\Delta\overline{R}_i$	-0.008%	-0.005%	-0.022%	-0.003%
% change	-19.15%	-13.19%	-53.57%	-6.67%
$\Delta\sigma^2_{Rm}$	0.075	0.056	0.184	-0.161
% change	4.58%	3.49%	10.02%	-10.46%

The table presents the shift in relative importance of risk factors composing total bank bidder return risk before and after bank-insurance partnership announcements. The total sample consists of 210 bancassurance deal announcements between 1990 and 2006. The first column presents the risk measures and statistics while each of the subsequent columns contain the results from the different samples analysed. Specifically, the sample of all deals includes 120 bancassurance deals, excluding deals where the targets are insurance agencies. The sample of bank-insurance deals includes 100 cases where banks bid for insurance companies, whereas the sample of insure-banking deals contains 20 cases of insurance company bids for banks. Finally, the sample of bank-insurance agency deals consists of 90 cases where banks bid for insurance agencies/brokers. Panel A presents the results from the pre-announcement period, while panel B presents the corresponding results from the post-announcement period. Finally, panel C presents the differences in the risk measures before and after the announcements. All the risk measures have been calculated using the models in equations 3.1 and 3.2. The variance terms have been multiplied by 10^4.

$\sigma^2 R_i$ is total risk, $\beta^2\sigma^2_{Rm}$ is the systematic risk component, $\sigma^2_{\varepsilon i}$ is the idiosyncratic risk component. All risk measures are averaged across firms. β is the average beta, while $\sigma\beta$ the standard deviation of betas. *Ri* is the average company return, *Rm* the average market return and σ^2_{Rm} is the average variance of market returns. Δs in panel C represent changes in the respective variables.

[1] Negative values indicate reduction in the risk or other measures, while positive values indicate a respective increase. a/b/c denote statistical significance at the 1%, 5% and 10% levels, respectively.

Looking at the second column that presents the results for all bancassurance deals excluding those where the targets are insurance agencies, some interesting statistics are observed. Starting with the mean portfolio return ($\bar{R}_i$) for all bidders, the pre-announcement figure is 0.041% and drops to 0.033% in the post-announcement period. The mean market return ($\bar{R}_m$) on the other hand, increases from 0.015% to 0.025% in the period following the announcements, while its variance increases 0.075 from 1.646 to 1.721, or by 4.58% (panel C). In both cases, the difference in the mean and variance of returns before and after the events is statistically insignificant. The results in relation to the variance are consistent with Fields, Fraser and Kolari (2007b) who do not find any significant changes in the risk measures of all acquirers before and after bancassurance deals. Furthermore, although the mean market beta ($\bar{\beta}$) across the sample of companies increased from 0.819 to 0.857, or by 4.69% (panel C), its standard deviation has dropped from 0.423 to 0.386. Even though the difference in the means and variance of betas before and after the announcements is insignificant, the fact that the average market beta increases, is in line with expectations; as markets become more and more concentrated through mergers and acquisitions (M&A) and the creation of financial conglomerates, the latters' equities will tend to approach the total market basket, and therefore their betas will be closer to one. In addition, it is well documented in the academic literature that banks that rely more on non-interest sources of income, have systematically higher market betas and therefore bear higher systematic risk (Allen and Jagtiani, 2000; Baele, De Jonghe and Vander Vennet, 2007; Stiroh, 2006). Consistent with that notion, the newly formed entities will also exhibit higher systematic risk exposures, following bancassurance partnerships. Shifting the focus to total risk and its components, it is evident that bidder total return risk ($\sigma^2 R_i$) in the period before the announcements (panel A) is 4.007. The systematic risk component for this period accounts for 35.62% of the bank total portfolio risk, while the firm specific risk component accounts for 64.38%. Post-announcement (panel B), the total risk figure slightly increases to 4.080, or by 1.83% (panel C), triggered by the slight increase in the market risk component ($\beta^2\sigma^2_{Rm}$) from 1.427 to 1.506 (panels A, B, respectively), or by 5.51% (panel C). Looking at the unsystematic risk component ($\sigma^2_{\varepsilon i}$), the figure marginally decreases after the announcement, from 2.580 to 2.574 (panels A, B, respectively), or by 0.21% (panel C). Both changes in

market risk and idiosyncratic risk are statistically insignificant. Finally, there is no significant shift in the relative importance of market and idiosyncratic components (percentages in brackets, panels A and B). Specifically, after the deal announcements, market risk accounts for 36.91% of total risk, an increase of about 1.30%, whereas firm specific risk accounts for 63.09%, which amounts to a marginal decrease of about 1.30%, both with respect to the relevant figures from the pre-announcement period (panel A). The results from the risk decomposition of the sample involving all bank-insurance partnerships are largely inconclusive. One explanation might be that these partnership announcements do not significantly alter the risk profiles of these institutions, as reflected by market data.

An alternative possibility might be that the risk effects from bank driven deals and insurance driven deals are diametrically different and, in effect, cancel out each other when a mixed sample is considered. Staikouras (2006) uses a theoretical framework to explore the distinct dynamics affecting banks and insurance companies, and suggests that banks are bigger, financially stronger and experience stronger brand recognition than insurers. He also points out a number of cultural differences between the two, both at the corporate and retail level. Such differences can affect investor expectations, particularly with respect to the institution that takes the lead in bancassurance partnerships. For example, investors might expect that the aggressive (non-aggressive) behaviour of insurers (bankers) with respect to sales, will affect the new entity in a negative (positive) manner in terms of their return and risk. From the perspective of returns, the above argument is supported in chapter four, where results show that the market clearly places more weight on bank driven deals as opposed to insurance led partnerships[109]. It is therefore possible that there are differences in the risk responses of acquirers, depending on the nature of their operations. As such, the sample of bank bidders and insurance bidders is separated in order to test whether there are such variations in the risk responses following bancassurance partnership announcements. The results are presented under columns three and four of Table 6.1. A first look at the returns of the two sets of acquirers reveals that their mean returns are very close[110] during the pre-announcement period (panel A), yet the two diverge in the period following the announcements (panel B). Specifically, the mean portfolio

[109] When insurers take the lead in a bank-insurance partnership, this is known as an Assurebank operation, where the insurer underwrites the products which are then marketed by the bank.

[110] The mean returns of the two sets of acquirers appear to be equal on the table due to rounding up. In reality they are not equal but are very close. Further information is available upon request.

return of bank bidders drops slightly from 0.041% to 0.036%, while the respective return of insurance bidders drops considerably to 0.019%. In line with expectations, the average betas of both portfolios increase slightly post announcement, but the changes are statistically insignificant. In addition, while the variance of the betas decreases post announcement for bank driven deals, the opposite is observed for insurance driven deals, yet both changes are statistically insignificant. The results on market betas are consistent with Fields, Fraser and Kolari (2007b) who do not find any significant changes in the risk measures of insurance bidders pre- and post-merger.

Moving to the risk decomposition part of the analysis, some very interesting results are observed. It is evident that total return risk decreases from 3.985 (panel A) to 3.834 (panel B) for bank bidders, and substantially increases from 4.130 (panel A) to 5.470 (panel B) for insurance bidders. The former represents a 3.79% fall in total risk for bank acquirers, and a 32.45% rise in the respective figure for insurance acquirers (panel C). Nevertheless, both changes are statistically insignificant. Shifting the focus to the systematic risk components, the figure for bank acquirers drops from 1.316 to 1.239, (panels A, B, respectively), or by 5.87% (panel C). On the contrary, the same figure for insurance bidders rises by 46.76% (panel C) from 2.052 to 3.012. However, once more both changes of the systematic risk components of bank and insurance bidders are statistically insignificant. Finally, while the idiosyncratic risk component of bank bidders drops from 2.668 to 2.595 (panels A, B, respectively), the equivalent figure for insurance bidders increases from 2.078 to 2.459, or by 18.32%, yet changes are statistically insignificant.

A closer look at bank bidders reveals that the contribution of the systematic component to total risk drops about one percentage point, while the contribution of the idiosyncratic component increases by almost 1%. Similar observations can be made for the insurance bidders, where the contribution of the idiosyncratic component decreases by about 5%, at the expense of the contribution of the systematic component, which increases by about the same amount. Although banks and insurance firms both operate as financial intermediaries, their respective risk-return profiles are distinct, given that the latter largely depend upon the structure of their assets and liabilities. Generally, insurance companies' focus their asset reserves at the longer end of the maturity spectrum in order to match their long-term liabilities, while banks generally hold short-term liabilities and long-term assets. The latter mismatch

causes the so-called negative gap in the banks' asset-liability structure, as their short-term liabilities are greater than their short-term assets. The above argument is verified when the decomposition results of bank and insurance bidders are put into comparison. Irrespective of the risk shifts before and after the announcements, it is clear that insurance companies are generally riskier than banks (higher total risk figures) and at the same time are more exposed to market risk than banks. Specifically, before the announcements, their systematic risk component accounts for 49.68% of total risk, whereas the respective figure for banks stands at 33.04%. On the other hand, banks bear higher firm-specific risk than insurance companies, with the figures being 66.96% and 50.32%, respectively. Similar conclusions can be drawn from the figures of the post-announcement phase, where the contribution of unsystematic risk stands at 67.68% for banks and 44.95% for insurance companies. The recent, 2007-2009 financial crisis provides further support for the above figures, with more banks than insurance companies facing financial distress and receiving capital injections. What is more, the fact that banks exhibit higher idiosyncratic risk may provide further evidence on why insurance-driven bancassurance deals expose insurers to higher risk after the announcements; the market might be taking into account the addition to the firm-specific risk factor that will be caused by integrating with a bank.

The differences in the risk-return profiles of banks integrating with insurance companies as opposed to combining with insurance agencies have been adeptly analysed in the previous chapters[111]. Following the same notion, the results from deals where the targets are insurance agencies are separately presented in column four of Table 6.1. The results show an insignificant decrease in the mean return from 0.042% to 0.039% and a large increase in their beta coefficient from 0.589 to 0.704 (panels A, B, respectively) or by 19.6% (panel C), which is statistically significant at 1%.

On the other hand, the decomposition of risks reveals some interesting results. Unlike banks that bid for insurance companies, the contribution of the systematic risk component of banks that bid for insurance agencies is at unusually low levels (16.78%), as opposed to the contribution of the idiosyncratic factor which is very high (83.22%). Even though there is a marginal shift in the contributions of each factor to total risk following the announcements, it seems that these banks bear very high

[111] See chapter 4 or chapter 5.

exposures to firm-specific risk. One explanation for this outcome might be the size of these banks, which tend to be small in terms of capitalization and assets; while another justification for this might be that riskier banks tend to bid for insurance agencies. It is well documented in the academic literature that, when it comes to risk, insurance agents/brokers are the best candidates for bank expansion, since they do not affect it (Heggestad, 1975; Nurullah and Staikouras, 2008). Shifting the focus on the changes in the risk attributes before and after the announcements as evidenced on panel C, it seems that bank deals with insurance agencies lead to a marginal reduction in total risk (3.19%) and idiosyncratic risk (6.86%), and a considerable increase in the systematic risk component (15.03%). Nevertheless, all changes are statistically insignificant.

At this stage, one might argue that an analysis based on the merger announcement cannot fully reflect the risk of the merging institutions before and after the actual merger. In order to further investigate that, and as a robustness check, the risk decomposition has also been carried out on the basis of the deal completion. The results are presented in Table 6.2. Following the structure of Table 6.1, panel A presents the decomposition of total return risk of acquiring firms in the period before the deal completion, while panel B deals with the risk decomposition for the period following the deals' completion. The post-completion changes in the risk and other variables are presented in panel C. The variables/statistics are presented in the first column, while each of the subsequent columns presents the results from the four different sample subsets.

Table 6.2. Decomposition of total return risk of acquiring institutions (completion)

	All Deals	Bank-insurance deals	Insure-banking deals	Bank-insurance agency deals
Panel A: period before merger (day -250 to day -1)				
$\sigma^2 R_i$	3.887	3.766	4.559	3.796
	(100%)	(100%)	(100%)	(100%)
$\beta^2\sigma^2_{Rm}$	1.341	1.162	2.341	0.632
	(34.50%)	(30.86%)	(51.35%)	(16.65%)
$\sigma^2_{\varepsilon i}$	2.546	2.604	2.218	3.164
	(65.50%)	(69.14%)	(48.65%)	(83.35%)
$\overline{\beta}$	0.811	0.786	0.947	0.598
$\sigma\beta$	0.419	0.409	0.462	0.398
$\overline{R}_i$	0.043%	0.045%	0.032%	0.039%
$\overline{R}_m$	0.018%	0.016%	0.028%	0.009%
σ^2_{Rm}	1.594	1.555	1.812	1.537
Panel B: period after merger (day +1 to day +250)				
$\sigma^2 R_i$	4.087	3.804	5.668	3.647
	(100%)	(100%)	(100%)	(100%)
$\beta^2\sigma^2_{Rm}$	1.624	1.285	3.521	0.758
	(39.74%)	(33.78%)	(62.12%)	(20.78%)
$\sigma^2_{\varepsilon i}$	2.463	2.519	2.147	2.889
	(60.26%)	(66.22%)	(37.38%)	(79.22%)
$\overline{\beta}$	0.864	0.853	0.927	0.730
$\sigma\beta$	0.413	0.382	0.565	0.490
$\overline{R}_i$	0.033%	0.037%	0.006%	0.040%
$\overline{R}_m$	0.023%	0.024%	0.015%	0.027%
σ^2_{Rm}	1.726	1.651	2.146	1.336
Panel C: Changes in risk pre- and post-merger[1]				
$\Delta\sigma^2 R_i$	0.200	0.038	1.109	-0.149
% change	5.15%	1.01%	24.33%	-3.93%
$\Delta\beta^2\sigma^2_{Rm}$	0.283[c]	0.123	1.180	0.126[c]
% change	21.10%	10.59%	50.41%	19.94%
$\Delta\sigma^2_{\varepsilon i}$	-0.083	-0.085	-0.071	-0.275
% change	-3.26%	-3.26%	-3.20%	-8.69%
$\Delta\overline{\beta}$	0.053[c]	0.067[b]	-0.020	0.132[a]
% change	6.54%	8.52%	-2.11%	22.09%
$\Delta\overline{R}_i$	-0.010%	-0.008%	-0.026%	0.001%
% change	-23.26%	-17.78%	-81.25%	2.56%
$\Delta\sigma^2_{Rm}$	0.132	0.096	0.334	-0.201
% change	8.28%	6.17%	18.43%	-13.08%

The table presents the shift in relative importance of risk factors composing total bank bidder return risk before and after the completion of bank-insurance partnerships. The total sample consists of 210 bancassurance deal announcements between 1990 and 2006. The first column presents the risk measures and statistics while each of the subsequent columns contain the results from the different samples analysed. Specifically, the sample of all deals includes 120 bancassurance deals, excluding deals where the targets are insurance agencies. The sample of bank-insurance deals includes 100 cases where banks bid for insurance companies, whereas the sample of insure-banking deals contains 20 cases of insurance company bids for banks. Finally, the sample of bank-insurance agency deals consists of 90 cases where banks bid for insurance agencies/brokers. Panel A presents the results from the pre-completion period, while panel B presents the corresponding results from the post-completion period. Finally, panel C presents the differences in the risk measures before and after the completion of the deals. All the risk measures have been calculated using the models in equations 3.1 and 3.2. The variance terms have been multiplied by 10^4.

$\sigma^2 R_i$ is total risk, $\beta^2\sigma^2_{Rm}$ is the systematic risk component, $\sigma^2_{\varepsilon i}$ is the idiosyncratic risk component. All risk measures are averaged across firms. β is the average beta, while $\sigma\beta$ the standard deviation of betas. *Ri* is the average company return, *Rm* the average market return and σ^2_{Rm} is the average variance of market returns. Δs in panel C represent changes in the respective variables.

[1] Negative values indicate reduction in the risk or other measures, while positive values indicate a respective increase. a/b/c denote statistical significance at the 1%, 5% and 10% levels, respectively.

Similar to the previous analysis, the mean portfolio return ($\bar{R}_i$) for all bidders drops from 0.043% to 0.033%, while the market return ($\bar{R}_m$) rises from 0.018% to 0.023%, between the pre- and post-merger periods. The variance of the market return (σ^2_{Rm}) on the other hand, increases by 8.28% (panel C), from 1.594 to 1.726 (panels A, B, respectively). Further statistical tests however, indicate that all the above changes are insignificant. Looking at the betas of acquirers in bancassurance partnerships, it is once more evident that the beta increases following the merger or acquisition. This represents a 6.24% rise (panel C), which is statistically significant at the 10% level. This is consistent with the results from the announcements-based risk decomposition, and gives further support to the previous argument that mergers and acquisitions in the financial services industry, the creation of financial conglomerates and increased diversification leads to higher exposures of the firms involved to changes in market sentiment, or economy wide shocks (Baele, De Jonghe and Vander Vennet, 2007). Looking at panel C, the decomposition results reveal a 5.15% rise in total risk ($\sigma^2 R_i$), a 21.10% rise in the systematic risk component ($\beta^2\sigma^2_{Rm}$) and finally a 3.26% reduction in the idiosyncratic risk component ($\sigma^2_{\varepsilon i}$). Although the shifts in the risk figures are in this case similar to those reported in Table 6.1, the rise in systematic risk here is statistically significant at 10%, and enhances the validity of the above argument. Furthermore, the results with respect to the contribution of each factor to total risk remain relatively similar to those reported in Table 6.1.

When bank driven deals are separated from insurance driven deals, the results indicate relative increases of 1.01% and 10.59% in total and systematic risk, respectively, and a decrease of 3.26% in idiosyncratic risk for banks merging with insurance companies (panel C, column 3). Although the change in the first two risk elements has a different direction than the one reported in the decomposition based on announcements (Table 6.1, panel C, column 3), the changes here are statistically insignificant as well. An interesting difference emerges when the beta is considered, where figures indicate a statistically significant rise of 8.52%, following the merger. For insurance companies merging with, or acquiring banks, the results are relatively similar to those reported in Table 6.1. The only notable divergence comes from the idiosyncratic risk figure which exhibits an increase of 18.32%, yet statistical tests indicate that the changes are insignificant.

Finally, when bank-insurance agency deals are considered (column 5), acquiring banks exhibit a statistically insignificant reduction of 3.93% in total risk, a 19.94% increase in systematic risk, which is statistically significant at the 10% level, and an insignificant reduction of 8.69% in unsystematic risk. In line with expectations as well as with results presented in Table 6.1, the beta of banks merging with, or acquiring insurance agencies, shoots up 22.09%, a shift that is statistically significant at the 1% level.

In summary, the overall results indicate that bancassurance deals do not significantly affect the total and idiosyncratic risk of acquiring institutions, per se. Nonetheless, the results provide evidence that the exposure of banks to system wide shocks is increasing following bancassurance partnerships. This is evident when one considers the rises in betas and in the systematic risk components, especially after the actual mergers or acquisitions. In addition, the comparison of banks and insurance companies shows that the two have distinct exposures to systematic and idiosyncratic risks and this divergence is linked to the distinct asset-liability structures in their balance sheets. What is more, banks that bid for insurance agencies are found to be highly exposed to firm-specific risk and scantily exposed to systematic risk.

One possible explanation for the above is that bancassurance offers institutions an opportunity to rebalance their risk exposures. Specifically, bancassurance seems to be used as a mechanism to diversify away firm specific risk at the expense of a higher systematic risk exposure. This is evident in both tables where the contribution of unsystematic risk to total risk is in most cases declining following the announcement/completion, and is followed by an analogous rise in the contribution of systematic risk components. Finally, the fact that banks that bid for insurance agencies exhibit far greater exposures on firm-specific risk can be related to either the size of these banks, which tend to be small in terms of capitalization and assets, or to the possibility that riskier banks tend to bid for insurance agencies in an attempt to diversify.

6.4.2. Determinants of Risk

This section builds upon the risk decomposition results by attempting to identify the factors that are related to the market based risk estimates as well as assessing the effect of the bank-insurance mergers on the aforementioned relationships. More

specifically, all measures of risk (total, market and idiosyncratic) are regressed on a variety of accounting variables in an attempt to gauge the relationship between the former and proxies of diversification, risk, profitability, leverage and size, as reflected on their equity returns. Not only that, possible shifts in those relationships before and after the bancassurance partnerships are examined by using this technique on a pre- and post-announcement/completion basis. In order to examine the relationship between the aforementioned proxies and risk, as well as possible changes in that relationship following the deals, the following model is estimated:

$$Y_{j,i} = \alpha + \beta_1 DIV_{k,i} + \beta_2 LL_{h,i} + \beta_3 ROA_i + \beta_4 LEV_i + \beta_5 Size_i + \varepsilon_i \quad (6.4)$$

where, $Y_{j,i}$ is each of the market based measures of bank risk (systematic risk, measured by the market beta, β, idiosyncratic risk, $\sigma^2_{\varepsilon i}$, or total risk, $\sigma^2 R_i$); *DIV* is each of the two proxies for diversification (the percentage of non-interest income to total operating income or the percentage of loans to total assets); *LL* is each of the three proxies for loan related risk (percentage of non-performing loans to total assets, percentage of provision for loan losses to total assets, or percentage of loan losses to total assets); *ROA*, *LEV* and *Size* are control variables that capture firm profitability (return on assets), leverage (ratio of total assets to common equity), and size (natural logarithm of total assets); and finally, ε_i, is the error term with the usual properties. It is important to note that equation (6.4) is employed on a pre- and post-announcement, as well as on a pre-and post-completion basis.

Table 6.3 presents the results of market beta regressions before and after the announcements of bank-insurance deals. Panel A presents the results from the pre-announcement regressions while panel B presents the respective results for the post-announcement period. The variables are presented in column one, while each of the subsequent columns (numbered 1 to 6) contain the results from each of the different model specifications. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing an additional three sets of regressions.

Table 6.3. Market beta regressions of bank-insurance deals

Panel A: Period before announcement						
	1	**2**	**3**	**4**	**5**	**6**
Constant	0.394	0.398	0.472	0.403	0.501	0.740
	(4.64)[a]	(4.62)[a]	(2.93)[a]	(2.38)[b]	(2.32)[b]	(2.70)[a]
Non-interest income share	0.790	0.773	1.057			
	(4.72)[a]	(4.40)[a]	(3.48)[a]			
Loans to total assets				0.226	0.205	-0.030
				(0.96)	(0.84)	-(0.10)
Non-performing loans to total assets			-4.074			-4.486
			-(0.65)			-(0.74)
Provision for loan losses to total assets	-2.679			-1.324		
	-(0.28)			-(0.13)		
Loan losses to total assets		-0.013			0.031	
		-(0.44)			(0.63)	
ROA	-0.069	-0.077	-0.098	-0.070	-0.064	-0.114
	-(1.16)	-(1.12)	-(1.01)	-(1.16)	-(1.37)	-(1.12)
Leverage	0.013	0.013	0.013	0.014	0.014	0.014
	(3.87)[a]	(3.87)[a]	(3.41)[a]	(4.02)[a]	(4.05)[a]	(3.37)[a]
Firm size	0.157	0.157	0.149	0.160	0.159	0.166
	(8.52)[a]	(8.52)[a]	(6.06)[a]	(9.34)[a]	(9.24)[a]	(7.78)[a]
N	85	85	66	85	85	66
Adjusted R-squared	0.49	0.46	0.45	0.46	0.46	0.45
F-statistic	15.10	15.14	11.61	15.31	15.41	11.68
Panel B: Period after announcement						
	1	**2**	**3**	**4**	**5**	**6**
Constant	0.877	0.869	0.913	0.733	0.777	0.667
	(5.27)[a]	(5.79)[a]	(5.00)[a]	(2.84)[a]	(3.29)[a]	(2.74)[a]
Non-interest income share	0.262	0.294	0.704			
	(0.99)	(1.12)	(1.69)[c]			
Loans to total assets				0.192	0.167	0.212
				(0.68)	(0.59)	(0.66)
Non-performing loans to total assets			-17.606			-16.206
			-(3.28)[a]			-(2.96)[a]
Provision for loan losses to total assets	-8.413			8.732		
	-(0.77)			(0.75)		
Loan losses to total assets		-0.054			0.046	
		-(0.95)			(0.77)	
ROA	-0.095	-0.093	-0.124	-0.082	-0.083	-0.113
	-(1.83)[c]	-(1.87)[c]	-(1.14)	-(1.53)	-(1.56)	-(0.96)
Leverage	0.002	0.002	-0.002	0.003	0.003	0.000
	(0.72)	(0.76)	-(0.28)	(1.01)	(1.00)	(0.02)
Firm size	0.112	0.114	0.115	0.115	0.114	0.126
	(4.53)[a]	(4.58)[a]	(4.22)[a]	(4.71)[a]	(4.80)[a]	(4.66)[a]
N	73	73	55	73	73	55
Adjusted R-squared	0.17	0.17	0.22	0.17	0.17	0.23
F-statistic	3.90	3.94	4.11	3.99	3.99	4.14

The table presents OLS regressions of bank market beta, β, on measures of revenue and asset diversification, risk proxies, profitability and size variables, before and after the announcement of bank-insurance deals. Panel A presents the results from the pre-announcement regressions while Panel B presents the results from the post-announcement regressions. The sample consists of 100 bancassurance deal announcements between 1990 and 2006. The independent variables are presented in the first column, while columns 1 to 6 contain the results from different regressions. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing three sets of regressions. In all models a number of bank-specific characteristics are employed as control variables (ROA, leverage, firm size). In cases where independent variables are correlated with one another, auxiliary regressions are employed in order to make them orthogonal. Non-interest income share is the ratio of non-interest income to total operating income, ROA is the ratio of net income to total assets, Leverage is the ratio of total assets to common equity, and Firm size is the natural logarithm of total assets. The rest of the variables are self explanatory. All balance sheet and income statement variables for the pre- and post-announcement regressions are obtained at the year end prior to and after the announcement, respectively.

The figures in brackets indicate t-values (White errors), while a/b/c denote statistical significance at the 1%, 5% and 10%, respectively.

Looking at the pre-announcement period (panel A) it is evident that there is a strong positive relationship between the ratio of non-interest income to total operating income and the beta of the firms (models 1 to 3). In effect, banks which are more reliant on non-interest sources of income have higher exposures in market wide shocks and consequently higher market betas. This is consistent with Baele, De Jonghe and Vander Vennet (2007), who report similar results in the context of bank diversification, but not within the context of bank-insurance mergers as well as in line with Allen and Jagtiani (2000) who find that nonbank activities increase bank systematic risk. It is notable that none of the proxies for loan risk demonstrate any sort of explanatory power with respect to bank market betas, prior to the deal announcement. Among the control variables, leverage shows a positive association with betas. The economic intuition behind this result is that riskier firms (high leverage) tend to have systematically higher betas than unlevered firms. In addition, firm size shows a strong positive relationship with betas. This is in line with expectations, given that, as discussed earlier, larger firms tend to capture a greater share in the total market basket, and hence, have systematically higher betas. Finally, looking at models 4 to 6, the results show that there is no relationship between the alternative proxy for diversification (loans to total assets) and betas. Shifting the focus to the post-announcement period (panel B), some interesting results can be observed. First, the relationship between non-interest income share and betas becomes insignificant, with the exception of model 3, where it is marginally significant. One plausible explanation for this might be that insurance activities bring about the desired diversification effects. Specifically, it is possible that the additional non-interest income that comes from insurance activities helps lower the systematic risk of banks and this is reflected in the insignificant relationship of non-interest income share and betas following the deal announcements. This outcome also sheds additional light on the results in the previous section, where betas are found to increase post announcement. The increase in betas is not related to the increase in non-interest income share coming from insurance activities per se, but is related to other factors, such as increased size. Second, the relationship between the ratio of non-performing loans to total assets and betas becomes negative and significant following the announcements (model 3). The economic rationale for this negative relationship is that this ratio can be interpreted as an ex-post measure of the actual losses from

lending activities (Berger, Hasan and Zhou, 2010). In effect, this ratio represents a firm specific measure of risk, and firms with a higher (lower) ratio of non-performing loans will inevitably bear greater (lower) exposure to idiosyncratic risk. As a result, the stocks of these firms are less (more) exposed to market wide shocks, hence the negative relation of this ratio with betas. Third, there is a negative relation between ROA and bank market betas following the merger announcement, which is significant at 10% (models 1, 2). One explanation for this outcome might come from the relation between ROA and leverage. Holding ROE constant, the higher the leverage, the lower the ROA and vice versa. Therefore, a negative relationship between the ROA and market betas can be explained if lower ROA stemming from higher leverage leads to higher risk exposure, and as previously discussed, higher systematic risk. Finally in order to check the robustness of the results, the beta regressions are also estimated using the pre- and post- deal completion dates as a benchmark. The results remain quantitatively similar and are presented in Table E.3 in the appendix.

Table 6.4 presents the corresponding results of idiosyncratic risk regressions before and after the announcements for bank-insurance deals, and follows the same structure as in Table 6.3.

Table 6.4. Idiosyncratic risk regressions of bank-insurance deals

All betas have been multiplied by 10^4						
Panel A: Period before announcement						
	1	**2**	**3**	**4**	**5**	**6**
Constant	3.950	4.060	4.660	4.880	4.750	3.800
	(5.36)[a]	(5.38)[a]	(3.66)[a]	(3.87)[a]	(3.88)[a]	(2.49)[b]
Non-interest income share	-3.730	-3.690	-6.160			
	-(2.15)[b]	-(2.08)[b]	-(1.93)[c]			
Loans to total assets				-2.490	-2.620	-1.090
				-(1.33)	-(1.47)	-(0.48)
Non-performing loans to total assets			-27.660			-25.310
			-(0.99)			-(0.97)
Provision for loan losses to total assets	63.580			49.190		
	(0.82)			(0.60)		
Loan losses to total assets		0.165			-0.078	
		(0.73)			-(0.26)	
ROA	0.166	0.204	0.220	0.228	0.283	0.383
	(0.54)	(0.62)	(0.48)	(0.82)	(1.36)	(1.02)
Leverage	-0.032	-0.033	-0.034	-0.036	-0.037	-0.030
	-(1.36)	-(1.38)	-(0.96)	-(1.61)	-(1.60)	-(0.92)
Firm size	-0.443	-0.434	-0.227	-0.514	-0.498	-0.430
	-(3.19)[a]	-(3.14)[a]	-(1.43)	-(3.76)[a]	-(3.63)[a]	-(3.07)[a]
N	85	85	66	85	85	66
Adjusted R-squared	0.13	0.13	0.11	0.14	0.14	0.08
F-statistic	3.52	3.43	2.64	3.73	3.70	2.19
Panel B: Period after announcement						
	1	**2**	**3**	**4**	**5**	**6**
Constant	0.905	1.420	1.310	4.860	5.890	7.000
	(0.88)	(1.51)	(0.89)	(1.74)	(2.51)	(2.92)
Non-interest income share	-0.223	-1.140	-0.849			
	-(0.12)	-(0.55)	-(0.24)			
Loans to total assets				-4.970	-5.520	-7.020
				-(1.69)[c]	-(1.99)[b]	-(2.20)[b]
Non-performing loans to total assets			70.800			40.530
			(1.89)[c]			(1.24)
Provision for loan losses to total assets	290.480			184.020		
	(1.60)			(1.00)		
Loan losses to total assets		1.470			0.725	
		(1.83)[c]			(0.87)	
ROA	0.770	0.670	0.899	0.547	0.492	0.926
	(1.72)[c]	(1.47)	(0.93)	(1.18)	(1.07)	(1.05)
Leverage	-0.012	-0.017	0.039	-0.025	-0.028	0.012
	-(0.54)	-(0.78)	(0.69)	-(0.99)	-(1.13)	(0.27)
Firm size	-0.518	-0.553	-0.536	-0.569	-0.596	-0.698
	-(2.00)[b]	-(2.11)[b]	-(1.80)[c]	-(2.33)[b]	-(2.49)[b]	-(2.57)[a]
N	73	73	55	73	73	55
Adjusted R-squared	0.16	0.15	0.10	0.21	0.19	0.26
F-statistic	3.67	3.48	2.26	4.81	4.37	4.70

The table presents OLS regressions of bank idiosyncratic risk, σ_ε^2, on measures of revenue and asset diversification, risk proxies, profitability and size variables, before and after the announcement of bank-insurance deals. Panel A presents the results from the pre-announcement regressions while Panel B presents the results from the post-announcement regressions. The sample consists of 100 bancassurance deal announcements between 1990 and 2006. The independent variables are presented in the first column, while columns 1 to 6 contain the results from different regressions. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing three sets of regressions. In all models a number of bank-specific characteristics are employed as control variables (ROA, leverage, firm size). In cases where independent variables are correlated with one another auxiliary regressions are employed in order to make them orthogonal. Non-interest income share is the ratio of non-interest income to total operating income, ROA is the ratio of net income to total assets, Leverage is the ratio of total assets to common equity, and Firm size is the natural logarithm of total assets. The rest of the variables are self explanatory. All balance sheet and income statement variables for the pre- and post-announcement regressions are obtained at the year end prior to and after the announcement, respectively.

The figures in brackets indicate t-values (White errors), while a/b/c denote statistical significance at the 1%, 5% and 10%,

respectively.

Looking at the results for the pre-announcement period (panel A), the coefficient on the non-interest income share reveals a negative and significant relationship between the former and idiosyncratic risk. Following the deal announcements (panel B), the coefficient becomes statistically insignificant. This is consistent with the literature, in that, although diversification in non-interest income sources is expected to reduce idiosyncratic risk, overreliance on non-interest income can have the opposite effects (Baele, De Jonghe and Vander Vennet, 2007; Stiroh, 2006). In the context of bank-insurance deals, results indicate that the additional non-interest income coming from insurance does not provide any additional benefit to the acquiring banks, in terms of further reducing their idiosyncratic risk exposure. Nevertheless, the coefficient on size is negative and significant in all model specifications, indicating that size-related diversification benefits are still present, something consistent with expectations for too-big-to-fail guarantees, and/or scale related synergies. Another explanation might come from Wilson and Williams (2000), which show that smaller E.U. banks experience more variable growth than larger banks. They suggest that large banks are able to exploit diversification advantages through off-balance sheet activities, which can smooth fluctuations in growth. This might explain the size sign here, given that, banks that exhibit less volatile growth patterns, should bear less idiosyncratic risk. Looking at panel B, some more interesting results are evident. In the first model, the coefficient on ROA is positive and significant, showing that more profitable companies bear higher idiosyncratic exposures after the deal announcement. The economic intuition of this result might be that more profitable banks might be relying on more risky sources of income, such as risky loans, and especially within the context of bank-insurance deals, insurance underwriting. This is verified in academic research, where insurance underwriting is found to increase bank risk when actual bank-insurance combinations are considered (Nurullah and Staikouras, 2008). In models 2 and 3 the coefficients of the proxies for loan risk (ratio of loan losses to total assets and ratio of non-performing loans to total assets) exhibit a positive and significant relationship with idiosyncratic risk, something in line with expectations. A notable shift in market perceptions, following the deal announcements, is observed in models 4 to 6 (panel B). The market measure of idiosyncratic risk exhibits a negative relationship with the ratio of loans to total

assets. In effect, the additional risk element which might stem from increasing this ratio is not priced by the market, perhaps due to the fact that investors expect that the latter risk is offset by diversification into the insurance business. This result is partially in contrast with Barros, Ferreira and Williams (2007), who report that bigger and more diversified E.U. commercial banks are less likely to perform well and more likely to perform poorly, as opposed to small and loan-intensive banks. To bring this argument to the context of the analysis here, large and diversified banks should exhibit inferior performance that would be reflected in a higher idiosyncratic risk exposure. Nevertheless, in the sample examined herein, bigger and more diversified banks (following the deal) are found to bear lower unsystematic risk. This could be due to better performance, the pure effect of diversification, or a combination of both, something not directly testable in the present analysis. Looking at Table E.4 in the appendix, which corresponds to idiosyncratic risk regressions before and after the deals' completion, the results are relatively similar. The only exceptions are the coefficient on leverage before the merger, which is significant (panel A, models 4 and 5) and the coefficients on ROA and loan losses to total assets after the merger, which are insignificant (panel B, models 1 and 2, respectively). If anything, this adds to the importance of bancassurance as a diversification tool for banks.

Moving forward, the results for total risk are presented in Table E.1[112]. Total bank risk can be decomposed into systematic and unsystematic risk as shown in the previous section. As such, the results for total bank risk are driven by both underlying components. As anticipated, the coefficients on non-interest income share are insignificant for both pre- and post-merger periods. This is expected, given the positive relationship between the latter and beta and the corresponding negative relationship of the ratio with idiosyncratic risk. In effect, these inverse relationships cancel out each other when total risk is considered. This is partially in line with Baele, De Jonghe and Vander Vennet (2007), who report an insignificant relationship between total risk and non-interest revenue share. Nevertheless, when they allow for non-linearity, the relationship becomes negative and significant up to a certain threshold (proportion of non-interest income to total operating income), after which, it turns to positive[113]. The results here are in contrast with Stiroh (2006), who reports a

[112] In order to conserve space this table is presented in the appendix.
[113] Further tests have been carried out in this chapter to test for non-linearity in the relationship between non-interest income share and all risk measures, yet the results were insignificant.

strong positive relation between total risk and non-interest income share. The coefficients of proxies for loan risk are, as in previous models, positive and significant, indicating that the higher the exposure to loan risk, the higher the bank total risk. What is more, the alternative proxy for diversification (loans to total assets), exhibits a negative relationship with total risk that becomes stronger post announcement, perhaps due to the expected diversification benefits from bancassurance. Finally, the corresponding results of total risk regressions before and after the completion of bank-insurance deals are presented in Table E.5 in the appendix, and are consistent with the above results.

Given the already discussed differences in the risk-return profiles of banks when they merge with insurance companies as opposed to combining with insurance agencies, this section moves on to analyse the determinants of bank risk before and after the announcements of bank acquisitions of insurance agencies. Table 6.5 and Table 6.6 present the results of market beta and idiosyncratic risk regressions before and after the announcements of bank-insurance agency deals, respectively. Finally Table E.2, which is reported in the appendix, contains the results of the total risk regressions.

Table 6.5. Market beta regressions of bank-insurance agency deals

Panel A: Period before announcement						
	1	**2**	**3**	**4**	**5**	**6**
Constant	0.000	0.096	0.018	-0.114	-0.130	-0.024
	(0.00)	(0.82)	(0.14)	-(0.49)	-(0.57)	-(0.11)
Non-interest income share	1.716	1.853	1.858			
	(4.85)[a]	(5.28)[a]	(5.18)[a]			
Loans to total assets				0.682	0.695	0.678
				(1.90)[c]	(2.06)[b]	(1.98)[b]
Non-performing loans to total assets			22.117			17.638
			(1.57)			(1.20)
Provision for loan losses to total assets	48.735			58.406		
	(2.68)[a]			(3.10)[a]		
Loan losses to total assets		0.264			0.398	
		(2.23)[b]			(3.56)[a]	
ROA	0.188	0.194	0.184	0.229	0.239	0.228
	(2.62)[a]	(2.64)[a]	(2.47)[b]	(3.49)[a]	(3.64)[a]	(3.49)[a]
Leverage	0.012	0.012	0.011	0.009	0.009	0.008
	(1.72)[c]	(1.60)	(1.72)[c]	(1.12)	(1.07)	(1.07)
Firm size	0.084	0.087	0.085	0.119	0.118	0.117
	(2.94)[a]	(3.07)[a]	(3.05)[a]	(6.27)[a]	(6.23)[a]	(6.45)[a]
N	79	79	79	79	79	79
Adjusted R-squared	0.28	0.26	0.29	0.29	0.29	0.30
F-statistic	7.14	7.03	7.45	7.34	7.35	7.63
Panel B: Period after announcement						
	1	**2**	**3**	**4**	**5**	**6**
Constant	0.587	0.597	0.464	-0.166	-0.053	-0.465
	(3.54)[a]	(3.63)[a]	(1.68)[c]	-(0.49)	-(0.16)	-(1.08)
Non-interest income share	0.455	0.429	0.458			
	(1.17)	(1.09)	(1.16)			
Loans to total assets				1.208	1.092	1.224
				(2.18)[b]	(2.12)[b]	(2.29)[b]
Non-performing loans to total assets			31.642			27.473
			(1.03)			(0.93)
Provision for loan losses to total assets	28.583			26.213		
	(0.73)			(0.66)		
Loan losses to total assets		-0.052			0.261	
		-(0.23)			(1.28)	
ROA	0.111	0.125	0.219	0.154	0.162	(0.20)
	(0.86)	(0.99)	(1.66)[c]	(1.18)	(1.29)	(1.53)
Leverage	0.002	0.001	0.002	0.004	0.005	0.007
	(0.32)	(0.23)	(0.17)	(0.76)	(0.94)	(0.57)
Firm size	0.103	0.103	0.104	0.105	0.099	0.105
	(4.12)[a]	(4.07)[a]	(4.33)[a]	(4.55)[a]	(4.30)[a]	(4.72)[a]
N	74	74	73	74	74	73
Adjusted R-squared	0.07	0.07	0.10	0.14	0.15	0.16
F-statistic	2.12	2.12	2.52	3.47	3.52	3.69

The table presents OLS regressions of bank market beta, β, on measures of revenue and asset diversification, risk proxies, profitability and size variables, before and after the announcement of bank-insurance agency deals. Panel A presents the results from the pre-announcement regressions while Panel B presents the results from the post-announcement regressions. The sample consists of 90 bancassurance deal announcements between 1990 and 2006. The independent variables are presented in the first column, while columns 1 to 6 contain the results from different regressions. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing three sets of regressions. In all models a number of bank-specific characteristics are employed as control variables (ROA, leverage, firm size). In cases where independent variables are correlated with one another auxiliary regressions are employed in order to make them orthogonal. Non-interest income share is the ratio of non-interest income to total operating income, ROA is the ratio of net income to total assets, Leverage is the ratio of total assets to common equity, and Firm size is the natural logarithm of total assets. The rest of the variables are self explanatory. All balance sheet and income statement variables for the pre- and post-announcement regressions are obtained at the year end prior to and after the announcement, respectively.

The figures in brackets indicate t-values (White errors), while a/b/c denote statistical significance at the 1%, 5% and 10%, respectively.

Table 6.6. Idiosyncratic risk regressions of bank-insurance agency deals

All betas have been multiplied by 10^4

Panel A: Period before announcement						
	1	**2**	**3**	**4**	**5**	**6**
Constant	6.330	5.960	5.610	2.040	2.100	0.857
	(4.11)[a]	(4.90)[a]	(3.51)[a]	(1.16)	(1.13)	(0.48)
Non-interest income share	-11.600	-12.090	-12.250			
	-(2.57)[a]	-(2.52)[b]	-(2.58)[a]			
Loans to total assets				3.670	3.630	3.490
				(1.47)	(1.49)	(1.43)
Non-performing loans to total assets			103.640			110.700
			(0.56)			(0.60)
Provision for loan losses to total assets	-185.690			-348.640		
	-(0.71)			-(1.22)		
Loan losses to total assets		-1.520			-2.350	
		-(0.95)			-(1.32)	
ROA	0.421	0.364	0.493	-0.103	-0.164	-0.028
	(0.47)	(0.42)	(0.55)	-(0.13)	-(0.21)	-(0.04)
Leverage	-0.044	-0.043	-0.044	-0.017	-0.015	-0.012
	-(1.11)	-(1.03)	-(1.17)	-(0.38)	-(0.32)	-(0.30)
Firm size	-0.632	-0.608	-0.654	-0.742	-0.740	-0.774
	-(1.70)[c]	-(1.63)	-(1.75)[c]	-(2.17)[b]	-(2.14)[b]	-(2.22)[b]
N	79	79	79	79	79	79
Adjusted R-squared	0.03	0.03	0.04	-0.03	0.03	0.04
F-statistic	1.54	1.54	1.58	1.55	1.55	1.60
Panel B: Period after announcement						
	1	**2**	**3**	**4**	**5**	**6**
Constant	4.610	4.640	3.520	1.740	1.130	0.957
	(5.05)[a]	(5.19)[a]	(1.87)[c]	(0.75)	(0.51)	(0.24)
Non-interest income share	-5.660	-5.830	-5.570			
	-(1.78)[c]	-(1.83)[c]	-(1.78)[c]			
Loans to total assets				2.190	3.140	2.700
				(0.79)	(1.11)	(0.89)
Non-performing loans to total assets			-52.970			-104.420
			-(0.31)			-(0.55)
Provision for loan losses to total assets	222.490			13.410		
	(0.92)			(0.07)		
Loan losses to total assets		1.930			0.147	
		(1.28)			(0.16)	
ROA	-0.514	-0.415	-0.530	-0.636	-0.610	-0.583
	-(0.57)	-(0.44)	-(0.47)	-(0.70)	-(0.68)	-(0.63)
Leverage	-0.010	-0.010	0.096	0.006	0.010	0.122
	-(0.20)	-(0.21)	(0.76)	(0.12)	(0.17)	(0.93)
Firm size	-0.550	-0.511	-0.497	-0.605	-0.593	-0.548
	-(2.74)[a]	-(2.41)[b]	-(2.33)[b]	-(3.53)[a]	-(3.50)[a]	-(3.04)[a]
N	74	74	73	74	74	73
Adjusted R-squared	0.11	0.11	0.10	0.10	0.10	0.10
F-statistic	2.83	2.81	2.54	2.60	2.55	2.59

The table presents OLS regressions of bank idiosyncratic risk, σ_{ε}^2, on measures of revenue and asset diversification, risk proxies, profitability and size variables, before and after the announcement of bank-insurance agency deals. Panel A presents the results from the pre-announcement regressions while Panel B presents the results from the post-announcement regressions. The sample consists of 90 bancassurance deal announcements between 1990 and 2006. The independent variables are presented in the first column, while columns 1 to 6 contain the results from different regressions. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing three sets of regressions. In all models a number of bank-specific characteristics are employed as control variables (ROA, leverage, firm size). In cases where independent variables are correlated with one another auxiliary regressions are employed in order to make them orthogonal. Non-interest income share is the ratio of non-interest income to total operating income, ROA is the ratio of net income to total assets, Leverage is the ratio of total assets to common equity, and Firm size is the natural logarithm of total assets. The rest of the variables are self explanatory. All balance sheet and income statement variables for the pre- and post-announcement regressions are obtained at the year end prior to and after the announcement, respectively.

The figures in brackets indicate t-values (White errors), while a/b/c denote statistical significance at the 1%, 5% and 10%,

respectively.

Looking at Table 6.5, the results are similar to those reported for banks bidding for insurance companies (Table 6.3). In particular, the coefficient on non-interest income share is positive and significant before the announcement (panel A) and becomes insignificant following the announcement (panel B), indicating that the additional income stemming from insurance brokerage activities lowers the systematic risk of banks. In addition, all proxies for loan risk apart from non-performing loans to total assets have a positive and significant relation with betas pre-announcement (panel A), but become insignificant following the announcement (panel B). A similar pattern is observed for the first two control variables (ROA, leverage). Both are positive and significant in the pre-announcement period, yet become insignificant post-announcement, with the exception of ROA, which is marginally significant in model 3. Overall, it seems that the expected diversification benefits have a strong effect on the capacity of the banks to assume loan risk. Nonetheless, this is not verified by the coefficient on the alternative diversification proxy (loans to total assets) which is positive and significant in both periods. Shifting the focus to size, its positive coefficient is in line with the results in Table 6.3 and indicates, as discussed earlier, that larger firms tend to have systematically higher betas. Further support for the above argument is provided by the larger coefficient for size in the post-announcement regressions.

Shifting the focus to the idiosyncratic risk regressions in Table 6.6, it is evident that bank-insurance agency deals are more beneficial than bank-insurance deals in terms of diversification. Specifically, the relationship between non-interest income share and idiosyncratic risk remains negative and significant even after the deal announcement. This is in contrast with bank bids for insurance companies, where the additional non-interest income generated via insurance underwriting does not provide any additional benefit to the acquiring banks in terms of further reducing their idiosyncratic risk exposure. On the other hand, the results here verify that the additional income generated via insurance brokerage plays an important role in reducing idiosyncratic risk. This result is in line with Nurullah and Staikouras (2008), whose findings suggest that insurance brokerage does not significantly affect the risk of banking firms. Furthermore, the negative and significant size coefficient verifies the presence of size-related decreases in idiosyncratic risk. The latter result is

corroborated by the findings of Baele, De Jonghe and Vander Vennet (2007) for European banks and Stiroh (2006) for U.S. bank holding companies.

Finally the corresponding results of the total risk regressions for bank-insurance agency deal announcements (appendix, Table E.2), show a negative and significant relationship between non-interest revenue share and total risk (panel A), that becomes insignificant following the deal announcement. In effect, fee income from insurance brokerage does not help reduce the total risk of banks. The only remaining significant variable in the models (both panels) is size, which exhibits a negative relationship with total risk. Taking into account the relationship between total risk and its two components (systematic, unsystematic), the result on size here can be explained by looking at the equivalent coefficient estimates in the previous tables. While size is positively related with market betas, it also exhibits a negative relation with unsystematic risk. Given that the overall effect of size on total risk is negative, we conclude that the effect of size on idiosyncratic risk dominates the relationship between size and beta. The latter finding is in line with Stiroh (2006), but in contrast with Baele, De Jonghe and Vander Vennet (2007). Finally, the results from the beta, idiosyncratic and total risk regressions before and after the completion of the bank-insurance agency deals, presented in Table E.6, Table E.7 and Table E.8 in the appendix, are consistent with the above results.

6.5. CONCLUSION

Banks and insurance companies have been allowed to combine their operations for some time now. Despite this, one important question that arises is whether the benefits of bancassurance outweigh the costs. Two primary advantages claimed by managers of the two institutions are that there are diversification gains, and cross-selling opportunities that can maximize profits. One problem with intensive cross-selling is that, while it may open new revenue streams for both banks and insurance companies, the latter might become exposed to the same types of shocks and thus increase their risk. However, in reality, the stakeholders of bank and insurance companies are not collectively interested in the same type of risks. For example, diversified investors are mainly interested in systematic risk, given their ability to diversify away idiosyncratic risks by constructing efficient portfolios. In contrast, customers, depositors/policyholders and large shareholders, are predominantly

concerned with idiosyncratic risks, since a failure of the bank would have detrimental effects on their holdings, deposits/policies. Finally, regulators and supervisory authorities are interested in both components of total risk, as the stability of the financial sector can be affected by both.

The academic literature so far has been inconclusive with regards to the risks associated with financial conglomeration and consequently the risks related to bancassurance. This chapter addresses this, in that for the first time, a risk decomposition technique is used to assess the direct effects of bancassurance mergers on total, market and firm-specific risk of acquiring institutions. What is more, this chapter offers novel results in the academic literature with respect to the relationship between the aforementioned market measures of risk and accounting measures of functional diversification, risk, profitability and size. The possibility of shifts in these relationships after the bancassurance events is also examined, in order to stress whether this type of diversification offers a comparative advantage in terms of risk. Using a large and global sample of bank-insurance deals between 1990 and 2006, this chapter gives a new insight on the phenomenon, with results that can be used by all stakeholders in evaluating such deals.

Overall, the results show that bancassurance deals do not significantly affect the total and idiosyncratic risk of acquiring institutions, per se. Nonetheless, the results provide evidence that the exposure of banks to system wide shocks is increasing following bancassurance partnerships. At this point, due care must be taken, as factors such as the nature of the bidder and target can have dissimilar effects on the respective risks. For example, investors and regulators should be careful when banks combine with insurance agencies as this will expose them to considerably higher systematic risk than in cases of bank acquisitions of insurance underwriters or vice versa. Another interesting result arises when the risk components of banks and insurance companies are compared. It seems that banks are much more exposed to firm-specific risk than to market risk, while insurance companies are relatively equally exposed to both types of risk. One possible advantage of the above, in the context of the analysis here, is that bancassurance offers institutions opportunities to rebalance their risk exposures, that is, shield themselves from unsystematic exposures, yet at the expense of bearing greater systematic exposure. The issue becomes even more apparent when banks that bid for agencies are examined, with their firm-specific component accounting for around 80% of their total portfolio risk. This might be due

to the fact that these banks are small and/or that risky banks bid for insurance agencies in an attempt to reduce their unsystematic risk. Indeed, the contribution of the idiosyncratic risk component to total risk marginally decreases following the announcements.

The analysis of determinants of risk yields some very interesting conclusions with respect to diversification through bancassurance. The additional non-interest income coming from bancassurance operations is no longer positively correlated with market betas following the mergers, suggesting that it is not diversification into insurance activities per se, that drives market betas up, but rather the increased scale of the institutions. On the other hand, when idiosyncratic risk is considered, bank acquisitions of insurance agencies are superior to bank acquisitions of insurance underwriters. The negative and significant relationship between non-interest income share and unsystematic risk fades away following bank acquisitions of insurance companies, but remains significant after bank acquisitions of insurance agencies.

This chapter provides further evidence that investors should welcome bancassurance deals. Although the latter seem to increase the systematic exposures of institutions, further tests reveal that the increase is not related to the additional income coming from insurance, but is rather related to size, something that is affected by any type of deal. On the other hand, depositors/policyholders and large shareholders should prefer deals between banks and insurance agencies, as the latter are superior to bank deals with insurance underwriters with respect to the diversification of firm-specific risk.

7. RISK-RETURN AND SPILLOVER EFFECTS OF BANK-INSURANCE MERGERS: A SPECIAL GARCH APPLICATION

7.1. INTRODUCTION

During the financial crisis of 2007-2009, global financial markets have suffered catastrophic losses. What started as a mere banking crisis – triggered by the threat of massive subprime borrowers' defaults – quickly spread within and across sectors, industries and international markets. The consequences of the crisis serve as a reminder to investors, managers and regulators alike, of how interconnected modern financial institutions and markets are, and how easily idiosyncratic shocks can manifest into systemic crises. The latter realisation has refuelled the longstanding debate on financial conglomerates, product diversification, contagion and regulation. With respect to financial conglomerates, a main concern among regulators, shareholders and bank managers is whether the risk inherent in their operations, under financial crises, will have a greater potential to spill over from banking to the insurance industry and vice versa, and to spread from these industries to the real economy, bringing about more dramatic consequences (Parsons and Mutenga, 2009). Furthermore, questions have been raised as to whether the global financial intermediation process is at stake, with some arguing that re-regulation is a virtual certainty (Walter, 2009). However, history is there to remind all stakeholders that entering a new series of cyclical interactions between regulation, regulatory avoidance and re-regulation, or deregulation, as depicted in Kane (1981), does not represent an optimal solution to the problem. Neither will constraining the degree of diversification of financial institutions, minimize the risk of future systemic crises, as implied in Wagner (2010). An important issue that must be clarified by policymakers is what types of diversification are welfare enhancing and what types are welfare reducing, thereby increasing systemic risks. In this context, it is important to examine how mergers and acquisitions (M&As) between banks and insurance companies, within and across national borders, affect the risk and returns of the acquiring firms as well as those of the other financial institutions operating in the same market place, and what factors determine the magnitude of such effects.

The previous empirical chapters shed light on the effects of bank-insurance deals on the risk-return profiles of acquiring firms. Considering the above issues, this chapter extends the literature on financial conglomerates and specifically the bank-insurance enterprise, by analysing the wealth and risk spillover effects of bancassurance partnerships across the financial services sector. Not only that, it measures the effects of an international sample of deals on the risk-return profiles of acquiring firms. What is different here is the fact that a Generalized Auto-Regressive Conditionally Heteroskedastic (GARCH) framework is employed for the first time in this context. This specification accounts for the cluster patterns commonly observed in financial time series and allows for shock persistence to be measured.

The contributions of this chapter are the following: First, the excess returns of the acquiring firms as well as those of peer bank and insurers are examined. The above analysis facilitates a) the assessment of the bidder equity response around bancassurance deals, b) the determination of the existence of spillover effects to the industry, and c) the evaluation of the nature of these effects as contagion or competitive. Second, the determinants of the bidder excess returns are analysed. This analysis sheds light on the effect of a selection of company and deal specific variables on the subsequent market valuations of the bidder banks. Third, the risk of bank bidders as well as the risk of bank and insurance peers is decomposed into its systematic and idiosyncratic components, while the results are contrasted between the pre- and post-announcement periods. The risk decomposition analysis helps determine a) whether bancassurance operations alter the risk of acquiring firms, b) the presence of intra and inter-industry risk-spillover effects and c) the nature of these effects as contagion versus competitive.

The results indicate that bank acquisitions of insurance firms lead to positive bidder stock valuations and reduce the risk of the acquiring firms. In addition, the presence of contagion effects from these deals is verified, with the reaction of insurance peers being stronger and slower to compete. The cross section analysis indicates that the market takes into account factors such as the bidders' leverage, the size of the deal, the medium of payment, bidder growth opportunities and whether the acquirer is located in the U.S., when evaluating bank-insurance deals. Finally, the risk decomposition results indicate that bancassurance deals bring about reductions in the total, market and idiosyncratic risk of acquiring firms. The risk reduction spills over to bank/insurer peers, who also seem to benefit from these mergers.

The chapter is organised as follows: Section 2 reviews the literature, while section 3 presents the sample and methodological framework employed. Section 4 reports and discusses the empirical findings, while section 5 concludes this chapter.

7.2. LITERATURE REVIEW

The question of whether financial conglomerates outperform their more specialized counterparts in terms of their risk-return attributes has fuelled an ongoing debate in the academic literature.

A number of studies have investigated bank product diversification through merger within the banking industry. In an early study, Martin and Keown (1981) examine the extent to which the formation of bank holding companies (BHCs) affects the risk-return attributes of the involved banks' common stock. Their sample consists of 25 BHCs formed in the United States between 1968 and 1974. Their analysis suggests that the formation of one-bank holding companies does not have an impact on the banks' risk-return generating mechanism. Houston and Ryngaert (1994) use data on 153 bank mergers between 1985 and 1991 to examine the consequent gains/losses. Their findings suggest that targets realize gains while bidders suffer losses as a result of these deals, suggesting that mergers result in transfer, rather than creation, of additional wealth. The above conclusions are corroborated in Siems (1996) who examines the value effects of 24 banking mega-mergers in 1995 as well as whether higher office overlap and increased market concentration resulting from those mergers led to positive or negative valuations. According to the results, acquiring banks experience negative abnormal returns while targets positive, something consistent with the wealth transfer hypothesis. However, bidders with the highest market overlap exhibit positive valuations and, in general, mergers with the highest market overlaps and market concentration levels have higher valuations than a) mergers with fewer office overlaps and b) those resulting in the smallest increases in market concentration. Furthermore, Houston, James and Ryngaert (2001) analyze a sample of 64 large bank mergers between 1985 and 1996. They find that mergers result in an increase in the value of the combined entities (bidders and targets) with most of revaluation originating from cost savings, rather than revenue enhancements.

On the contrary, Zhang (1995) performs an event study analysis of 107 U.S. bank takeovers between 1980 and 1990 and finds that on average mergers create, rather

than transfer value. However, his result might be due to the fact that the estimates are based on the size-adjusted combined returns of bidder and target firms. DeLong (2001) divides bank mergers between BHCs into diversifying and focusing mergers along geographic or activity lines. While focusing mergers are found to create value, diversifying mergers do not.

DeYoung and Roland (2001) employ data on 472 banks over 1988-1995 to investigate the association between profitability, volatility, and revenue sources. Their findings indicate that increased diversification into fee-based activities are associated with higher, rather than lower, volatility of bank revenues. Similarly, Stiroh (2004) investigates diversification benefits from banks' expansion into non-traditional activities producing fees and service charges, fiduciary income and trading revenues. He uncovers two main results. First, at the aggregate level, although the volatility of banks' net operating income declines, the lower volatility is not due to diversification benefits but because of reduced volatility of net interest income. Second, at the micro level, increased reliance on non-interest income is accompanied by higher risk and lower risk-adjusted profits. The overall conclusion is that product diversification into non-interest income activities need not be stabilizing. As a way of explanation, Stiroh (2004) points out that convergence across financial institutions has led to higher correlations among product lines, reducing diversification gains as a result. For example, increased cross-selling and the use of similar models of risk measurement and risk management tend to expose different segments of a conglomerate firm to the same economic and financial shocks. In the international context, Acharya, Hasan and Saunders (2006) use micro level data on 105 Italian banks over 1993-1999 to investigate the effect of diversification within traditional banking activities on risk and returns. They find that diversification of bank loans across sectors and industries within those sectors, does neither necessarily improve return nor reduce risk. They conclude that these results are consistent with the view that effectiveness of monitoring and information gathering by banks declines when they diversify into newer industries and operate at higher levels of risk.

Of more recent interest has been the expansion of banks into non-banking activities, especially the bank-insurance enterprise. The growth of this phenomenon in the industrialized world has led to an increasing volume of related research. The studies in this area can be divided into several strands of literature. One strand concentrates on the shareholder value effects of bank expansion into non-banking

activities and produces mixed findings[114]. Another strand looks into the risk-return effects of bank diversification into non-banking and produces mixed results as well[115].

Another important question raised in the literature is whether diversification per se has a positive (premium) or negative (discount) impact on the market valuations of conglomerates. The above question has given rise to another stream of contributions. These studies typically focus on the comparison of the valuations of diversified firms with the respective valuations the same firms would have if they were broken into their component units. For example, Schmid and Walter (2009) use a sample of 664 U.S. financial firms between 1985 and 2004 and compare the excess values[116] and measures of diversification of diversified firms versus those of focused firms. They also regress excess value measures on different diversification proxies and other control variables. Their results point to a substantial and persistent conglomerate discount in financial firms and to the fact that it is diversification that causes the discount and not that troubled firms choose to diversify in other areas. Interestingly, when combinations between banking and insurance or banking and investment banking are considered, they are found to offer a significant valuation premium. Using similar approaches Berger and Ofek (1995) and Servaes (1996) report a diversification discount for U.S. firms[117]. The first study also reports that this discount is smaller for companies that diversify into related industries. Nevertheless, the findings of studies on corporate diversification are questioned in Villalonga (2004a) who documents that the diversification discount is an artifact of Compustat segment data. Using a database that incorporates a more consistent business unit breakdown she reveals a diversification premium for all economic sectors between 1989 and 1996. Somewhat comparable conclusions are also drawn in Villalonga (2004b) where it is found that diversification does not destroy value. The issue of a conglomerate discount however, re-appears for financial firms. Specifically, Laeven and Levine

[114] The results of these event studies have been extensively analysed and discussed in previous chapters. See chapter 4 for an extensive review or alternatively see section 3.2.3. in chapter 3 for a summary of these studies.

[115] The results of these risk-return studies have been extensively analysed and discussed in previous chapters. See chapter 6 for an extensive review or alternatively see section 3.2.2.2. in the chapter 3 for a summary of these studies.

[116] Excess value is calculated as the log of the ratio of a firm's value to its imputed value. The imputed value of the firm is calculated as the sum of the imputed segment values, whereas, the imputed value for each segment is calculated by multiplying the segment's sales (assets) by the median ratio of the market value to sales (assets) for single segment firms in the same industry.

[117] The first use a sample of 3,659 firms between 1986 and 1991, while the second employ a sample ranging from 266 to 518 firms, for the 1961-1976 period.

(2007) use an international sample and even after accounting for the issues raised in Villalonga (2004a), find that diversification of bank based financial services firms is value destroying. On the contrary, Elsas, Hackethal and Holzhäuser (2010) find no evidence on discount for financial conglomerates when they diversify into fee-based services, trading, and underwriting insurance contracts, based on data of nine industrialized countries over 1996-2003. Indeed, they find that revenue diversification is associated with higher bank profitability and greater market valuation.

A final strand of literature attempts to shed light on the risk-return spillover effects within and across sectors of the financial services industry. For example Elyasiani, Mansur and Pagano (2007) examine the risk-return linkages across U.S. commercial banks, securities firms and life insurance companies between 1991 and 2001. Specifically, they investigate the transmission of changes in the level and volatility of stock returns across these firms using a multivariate GARCH model. Their results verify the presence of wealth spillover effects across smaller financial institutions (FIs, hereof) and the presence of strong volatility spillover effects across large institutions. In a similar vein, Elyasiani and Mansur (2003) use a sample of 47, 85, and 7 large banking institutions for the United States, Japan, and Germany, respectively. Their results suggest strong interest-rate and idiosyncratic volatility spillover effects in the equity prices of banks across these countries. Another issue of particular interest that has been examined in the academic literature is that of spillover effects caused by banking/insurance failures or distress announcements. For example Aharony and Swary (1983) use a sample of the 3 largest bank failures in the 1970s to examine the presence of spillover effects. They fail to find any contagion effects for the two cases where the failure was caused by firm specific factors, but report strong contagion effects for one of the cases examined where the failure was induced by external factors. In a similar fashion, Brewer and Jackson (2002) look into the inter-industry spillover effects of three distress related announcements across 134 banks and 61 life insurance companies. Although they find evidence of strong inter-industry contagion, the results suggest that the effects are not purely contagious in nature but directly linked to factors such as geographic proximity, asset portfolio composition, liability portfolio composition, and regulatory expectations. These results give rise to the issue of the so called ‘pure panic’ versus ‘information based contagion’ discussed in Aharony and Swary (1996).

7.3. DATA AND METHODOLOGY

This chapter draws on a GARCH framework to consider the impact of large bank-insurance deals on the risk-return profiles of acquiring banks and peer banks and insurance firms. The analysis allows the impact of these deals on the risk-return attributes of banks to be determined, while at the same time facilitates the examination of the existence of risk-return spillover effects across the financial services sector, induced by the bancassurance deals. Finally, a cross section analysis is also employed that assesses the contribution of the bidders' characteristics and deal-specific factors on the abnormal returns of the acquiring banks.

Information on announcements of completed deals between banks and insurance companies is collected using the mergers and acquisitions database of Thomson One Banker. The selection process draws deals from the U.S., Europe and other countries available, allowing an international sample of mergers and acquisitions (see Table 7.1). In particular, the selection process admits to the following criteria: The bidder is a public banking institution, the target is a public or private insurance company, the value of the deal is disclosed and the deal does not entail rescue motivations. The search based on the above criteria yields a final sample of 50 cross-product merger and acquisitions between banks and insurance firms.

At this point it is worth mentioning that the sample selection process focuses on large bancassurance mergers because they represent a model landscape for the nature of the investigation applied here. First, large mergers and acquisitions are closely monitored by investors, analysts and the press, thus a wider degree of information involving these cases is disseminated in the markets. As a result, it is expected that large deals will trigger greater impacts on investor and policy maker decisions and consequently on the stock prices of the involved institutions. Not only that, large deals tend to have a greater impact on the structure of the financial services sectors, either by inducing greater competition or by creating further opportunities for synergies among sector participants. The second argument supporting the selection of large deals is rather methodological. In particular, GARCH models behave in a more stable

manner with returns of large companies that are regularly traded on the markets, than with returns of thinly traded stocks[118].

Table 7.1. Sample characteristics and number of deals per country and year

Country	Bidders	Targets	Year	No of Deals	%
Argentina	0	2			
Australia	3	2			
Belgium	1	0			
Brazil	1	1	1991	2	3.64%
Canada	6	3	1992	1	1.82%
Cyprus	1	1	1993	1	1.82%
Denmark	4	4	1994	3	5.45%
Finland	1	1	1995	2	3.64%
Germany	2	2	1996	4	7.27%
Hong Kong	1	2	1997	3	5.45%
Ireland	1	2	1998	3	5.45%
Italy	6	6	1999	6	10.91%
Netherlands	0	1	2000	7	12.73%
Norway	1	1	2001	3	5.45%
Philippines	1	1	2002	5	9.09%
Portugal	1	2	2003	4	7.27%
South Korea	1	1	2004	3	5.45%
Spain	3	1	2005	2	3.64%
Sweden	2	2	2006	1	1.82%
Switzerland	1	1			
United Kingdom	4	3			
United States	9	11			
Sum	**50**	**50**	**Total**	**50**	**100%**

Furthermore, the analysis also considers the peer banks and peer insurance companies of the bidders in the sample. Having collected information on the bank-insurance deals, the Thomson One Banker individual deal tear sheets are used to construct the sample of the peer groups. In particular, the each tear sheet is used to obtain the name of the acquirer, the deal's announcement date and information on the index where the bank is traded. Once the above information is collected, Bloomberg and/or Thomson Datastream are used to track the historical constituent lists of the market where each bidder is traded[119]. Finally, the company classification systems of Bloomberg and/or Datastream are employed in order to construct two peer portfolios for each of the 50 bidders, namely, bank peers and insurance company peers.

Individual daily stock prices for acquiring banks and their peer institutions as well as daily prices for the index where each bidder is traded are collected from Thomson

[118] Tests using a GARCH approach have been carried out on the returns of a number of small banks involved in bancassurance mergers (sample drawn from previous chapters). Almost all of the models exhibited problems with convergence.

[119] In cases where historical constituent lists are not available on either Bloomberg or Thomson Datastream, the lists are obtained by contacting the local exchanges.

Datastream, for a period of 251 trading days before and 250 trading days after, relative to each announcement/deal completion. Logarithmic returns are then calculated for each of the 50 bank bidders and respective peers as well as for each index, respectively. For each deal (bidder) in the sample, peer bank and insurance company returns are then used to form two equally weighted portfolios consisting of bank peers and insurance peers. The final sample of peers consists of 40 bank and 33 insurance portfolios, respectively[120]. Finally, accounting variables for the second-step cross section analysis are obtained from the Thomson Financial database and consist of year-end financial statement data for the period before the announcement, whereas deal specific characteristics are collected via the Thomson One Banker's deal tear sheets.

The empirical investigation in this chapter is carried out in four phases. The first phase sets out to examine the impact of bank-insurance mergers on the stock prices of acquiring institutions, while the second phase deals with return-spillover effects on peer banks and insurance companies. An event study approach suits the purposes of the above analysis. In particular, bidder and peer portfolio excess returns are calculated as the difference between the observed returns and those predicted by the single index model. Coefficient estimates are obtained using an estimation period of 210 days (-250 to -41 days prior to the announcement date i.e. day 0). These are subsequently used to calculate excess returns during the 81 trading days of the event period (-40 to +40 days) surrounding the deals' announcement. Unlike previous studies, a GARCH framework is employed here in order to assess the impact of bank-insurance mergers on the stock prices of acquirers and peer bank and insurer portfolios[121]. This framework takes into account the behavioural patterns of both the first and the second moments of the return distribution, accounts for conditional heteroskedasticity in the errors, and allows for persistence in shocks to be measured. This property is important given that, if time dependence in returns is not properly modelled, the estimates are inefficient and test statistics are inconsistent (Bollerslev,

[120] The lower number of observations in the peer portfolios is due to the non-availability of constituent lists and/or equity prices during a particular period – different for each country where the bidder is located.

[121] For comparison purposes, the estimation has also been carried out without modelling the variance and by employing a traditional event study methodology, as above. Although the results do not differ quantitatively (similar excess returns), the t-statistics appear to be larger for bidders and bank peers, while lower for insurance peers, when the variance is assumed to be constant. The results are available in Table F.1 and Table F.2 in the appendix.

1986; 1987; Engle, 1982). During the event period the excess returns and conditional variances are forecasted sequentially on a daily basis. The GARCH specification used can be represented as follows:

$$R_t = c + \beta R_{mt} + u_t \qquad u_t \sim N(0, h) \tag{7.1}$$

$$h_t = \mu + \theta(L)\varepsilon_t^2 + \delta(L) h_t \tag{7.2}$$

where, R_t is the return on a bank stock/peer portfolio; c, β, μ,θ and δ denote the parameters to be estimated; R_m is the market return measured by the daily changes on the pertinent market index where the bidder is located; $\theta(L)$ and $\delta(L)$ are lag polynomials of orders p and q, respectively, and L is the backward shift operator. Non-negativity of h_t implies the identification conditions that $\mu > 0$ and $(\theta, \delta) \geq 0$, while variance stationarity is met by $\theta + \delta < 1$. The event's impact on the wealth of acquiring banks and peers is measured by the magnitude of the abnormal return (*AR*), which is algebraically expressed as:

$$AR_t = R_t - (c + \beta R_{mt}) \tag{7.3}$$

The average abnormal return (*AAR*) and the cumulative average abnormal return (*CAAR*) are calculated using the conventional formulas as follows:

$$AAR = \sum_{i=1}^{N} AR_{it} \Big/ N \tag{7.4}$$

$$CAAR = \sum_{i=-t}^{t} AAR_i \tag{7.5}$$

Following Savickas (2003) the cross-sectional test statistic for testing the significance of the GARCH-based excess returns (*AR*) can be formulated as:

$$t = \sum_{i=1}^{N} \frac{S_{it}}{N} \Bigg/ \sqrt{\frac{1}{N(N-1)} \sum_{i=1}^{N} \left(S_{it} - \sum_{j=1}^{N} S_{jt} \; / \, N \right)^2} \tag{7.6}$$

where, $S_{it} = AR_{it} \big/ \sqrt{h_{it}}$, and N is the number of firms.

The third phase of the empirical analysis attempts to shed light on the determinants of acquirer excess returns using a cross-sectional framework. In particular, the estimated excess returns from various windows surrounding the announcements are used as endogenous variables and are regressed against a selection of accounting and deal specific variables. The mathematical formulation of the model is the following:

$$AR_t = \boldsymbol{X}\,\boldsymbol{\beta} + \varepsilon_t \tag{7.7}$$

where, AR_t is the estimated excess return from the chosen event window, $\boldsymbol{X}$ denotes a vector of predetermined exogenous factors, $\boldsymbol{\beta}$ is the vector of parameters to be estimated and ε_t is the error term with the usual properties.

The fourth and final phase of the analysis entails the decomposition of the acquiring banks' and peer institutions' total risk into its systematic and idiosyncratic components and the examination of possible shifts in each of these risk categories between pre- and post-deal periods. Given that stock returns are characterised by volatility clustering, as discussed earlier, a GARCH framework is applied to estimate the systematic and idiosyncratic conditional variances of bank bidders and of their respective peer portfolios (equations 7.1 and 7.2). In effect, total risk is defined as the sum of systematic and idiosyncratic risk components, as follows:

$$TR = \beta^2 \times Hm + Hu \tag{7.8}$$

The following steps are followed in order to obtain equation (7.8): First, a single index GARCH model is estimated for each bidder/peer portfolio. Second, the beta coefficient is squared. Third, each bidder's/peer portfolio's conditional variance is averaged. Fourth, the market indices are used as dependent variables in GARCH (1,1) models in order to compute each market's average conditional variance. Fifth, each bidder's/peer portfolio's risk is calculated as the product of its squared beta coefficient and the corresponding market index variance. Finally, the average systematic risk component ($\beta^2 \times Hm$) and the average idiosyncratic risk component (Hu) across the sample of bidders/peer portfolios is calculated. The above calculations are performed both for the pre- (-250 to -1) and post-announcement period (+1 to +250), respectively.

7.4. EMPIRICAL FINDINGS

7.4.1. WEALTH EFFECTS ON BIDDERS

This section attempts to gauge the impact of bank-insurance deal announcements on the stock prices of acquiring banks using a GARCH approach. This analysis contributes to the event-study evidence on the effects of bank-insurance mergers in the following ways: First, although there is some empirical evidence on the wealth effects of bancassurance mergers, existing research is rather indirect, in that it focuses on either individual deals, such as the Citicorp-Travelers megamerger (Carow, 2001a; Johnston and Madura, 2000), or on various regulatory events affecting the bank-insurance interface (Carow, 2001b; Carow and Heron, 2002; Cowan, Howell and Power, 2002; Hendershott, Lee and Tompkins, 2002; Neale and Peterson, 2005). Others, delve into the effects of diversifying mergers on the involved institutions but yield contradicting results (DeLong, 2001; Lepetit, Patry and Rous, 2004). In contrast with the above studies, this chapter incorporates an actual sample that contains the 50 largest bank-insurance deals announced between 1990 and 2006. Second, more recent studies that look into the aggregate effects of actual bank-insurance mergers on bidders, targets or the combined entity, involve somewhat small samples (Beitel, Schiereck and Wahrenburg, 2004; Cybo-Ottone and Murgia, 2000), or yield contradicting results depending on the region/sample examined (Chen, Li, Moshirian and Tan, 2007; Ekkayokkaya, Holmes and Paudyal, 2007; Fields, Fraser and Kolari, 2007a; b; Staikouras, 2009). A rather considerable shortcoming in these studies is that they fail to account for the time-varying nature of the variance of stock returns and this could lead to inefficient estimates and problems with the test statistics. The current investigation differs from the aforementioned research in that it accounts for heteroskedasticity in stock returns.

GARCH models are estimated for each firm in the sample and the corresponding excess returns and conditional variances are forecasted sequentially, as described in the previous section. Wealth effects and standard errors are then averaged, cumulative average returns calculated over different time windows, while the cross-section test-statistics are estimated by employing equation (7.6). The time windows encompass all combinations within a 9-day [-4 +4], relative to the deals' announcement day [0 0]. The results are presented in Table 7.2.

Table 7.2. Bidders' excess returns due to bank-insurance mergers: A GARCH model

		1	2	3	4
			Event windows for up to		
		3 days	5 days	7 days	9 days
	Pre-event window	[-1 0]	[-2 0]	[-3 0]	[-4 0]
1	CAAR	1.58%	1.43%	1.27%	1.28%
	t-test	(2.62) [a]	(2.44) [b]	(1.96) [b]	(1.77) [c]
	Post-event window	[0 +1]	[0 +2]	[0 +3]	[0 +4]
2	CAAR	1.64%	0.39%	0.45%	0.31%
	t-test	(2.92) [a]	(0.96)	(1.05)	(0.66)
	Event window	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
3	CAAR	1.47%	1.60%	1.45%	1.45%
	t-test	(2.53) [b]	(2.82) [a]	(2.37) [b]	(2.18) [b]
	Event window	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
4	CAAR	1.75%	0.36%	0.26%	0.12%
	t-test	(2.99) [a]	(1.06)	(0.85)	(0.41)
5	Mean ARCH coefficient		0.120		
	t-test		(3.82)		
6	Mean GARCH coefficient		0.730		
	t-test		(11.66)		
7	Mean volatility persistence		0.850		

The sample used consists of 50 bancassurance deals announced between 1990 and 2006. The reported values are cumulative average abnormal returns (CAAR). Abnormal returns are calculated using the market model via a GARCH estimation process. ARCH and GARCH coefficients represent the average of all firms, while the average standard errors are calculated using the following specification due to: $\overline{s.e.} = \frac{1}{n}\sqrt{\sum_{i=1}^{n} s.e.\ \hat{b}_i)^2}$, where $\overline{s.e.}$ is the average standard error and $s.e.\left(\hat{b}_i\right)$ is the firm-specific ARCH and GARCH standard errors.

a/b/c denote significant CAAR at the 0.01/0.05/0.10 level (two-tailed test) for the pertinent event period.

The results presented under column one clearly show that the cumulative average excess returns (*CAARs*) experienced by the bidders are positive and significant, while sustain themselves when any combination up to a maximum of three days is considered. Nevertheless, both the magnitude and the significance of excess returns dissipate as the windows widen further. This upholds market efficiency, in that news are quickly absorbed by the stock markets. The comparison of the results for the pre- and post-event windows (rows 1 and 2), provides further evidence towards market efficiency as all pre-event CAARs are significant – yet become weaker as the windows widen – whereas post-event windows produce significant results only when the 2-day [0 +1] window is considered. Results presented in rows 3 and 4 show the announcement effects over windows combining the pre- and post-event time horizons. Extending the pre-event period up to four days prior to the merger announcement

seems to generate statistically significant excess returns, but this does not seem to be the case when the post-event period is extended (row 4) apart from the [-1 +1] window. The significant excess returns prior to the announcement indicate the presence of information leaks. The significance of such abnormal retrains, however, did not last beyond the post-announcement date, which in turn could provide some support towards market efficiency.

The positive and significant excess returns experienced by bank bidders point to positive investor expectations for the bank-insurance interface and provide further support for the passage of FSMA (1999) or similar legislation, which allowed bank and insurers to combine at the operational level. In general, the announcement effects occurred before and at the time of the merger.

The results above are indirectly comparable[122] with studies examining the reaction of bank and insurance companies to court rulings allowing banks to enter insurance brokerage and/or underwriting (Carow, 2001b; Cowan, Howell and Power, 2002), the passage of the Financial Modernization Act (FSMA, 1999) (Carow and Heron, 2002; Hendershott, Lee and Tompkins, 2002), and the Citicorp-Travelers merger announcement (Carow, 2001a; Johnston and Madura, 2000). At this point, it is interesting to contrast the results of the GARCH approach applied here with the corresponding results of studies that focus on actual bank-insurance deals, yet do not take into account the time-varying nature of volatility in stock returns. The GARCH approach corroborate studies that find positive excess returns for bidders and/or the combined entity (Beitel, Schiereck and Wahrenburg, 2004; Cybo-Ottone and Murgia, 2000; Fields, Fraser and Kolari, 2007a; b; Staikouras, 2009). Nevertheless the results here are in contrast with studies that find negative (Chen, Li, Moshirian and Tan, 2007), or insignificant excess returns (Ekkayokkaya, Holmes and Paudyal, 2007) for acquiring firms, respectively.

7.4.2. Wealth Spillover Effects on Peer Institutions

As discussed in the previous section, a number of studies focus on the effects of individual mergers or specific regulatory events on the interface between banks and

[122] Although these studies examine the bancassurance market, they focus on the impact of isolated events. The current research examines a large cross-section of international bancassurance deals, hence the term ‘indirectly comparable’.

insurance companies. These studies[123] typically examine the impact of these announcements on the equity prices of peer institutions in the financial sector. Another strand of research delves into spillover effects across financial intermediaries and banking in particular (Aharony and Swary, 1983; 1996; Brewer and Jackson, 2002; Elyasiani, Mansur and Pagano, 2007; Kaufman, 1994), but not in the context of bancassurance deals. This section attempts to gauge the impact of bank-insurance deal announcements on the stock prices of bank and insurance peers using a GARCH approach. It thereby extends the literature in two ways. First, by providing direct evidence – from actual bank-insurance deals – on the issues of intra- and inter-industry spillover effects, and second, by determining the nature of the former effects as competitive versus contagion. The distinction between contagion and competitive intra- or inter-industry effects is rather straightforward. Contagion effects are supported when the positive (negative) bidder stock price adjustments spillover to industry, resulting in positive (negative) valuations in the stock of peer banks or insurance companies. On the contrary, competitive effects are supported when the stocks of peer institutions exhibit valuations in the opposite direction to those of the bank bidders. In case spillover effects are present, it is expected that on average bank peers will exhibit competitive effects given the competitive advantage bancassurance can bring to their competitors. On the other hand, insurers are expected to experience contagion effects given that investors might anticipate that they will become future targets of large banks. Lang and Stulz (1992) argue that spillover effects from one or more firms to others can be manifested as a combination of contagion and competitive effects[124]. Table 7.3 displays the estimation results for this analysis. The results for bank peers are presented under column A while the respective results for insurance peers are presented under panel B.

[123] (Carow, 2001a; b; Carow and Heron, 2002; Cowan, Howell and Power, 2002; Hendershott, Lee and Tompkins, 2002; Johnston and Madura, 2000; Neale and Peterson, 2005).

[124] This also applies in the current analysis. That is, it is likely that some peer institutions will exhibit competitive effects, while others will exhibit contagion effects, around the announcement date. Given that the current framework reveals the net spillover effect; that is, if contagion effects dominate competitive effects, the net spillover effect will be of contagion nature and vice versa.

Table 7.3. Spillover effects to bank and insurance peers based on GARCH models

	Panel A: Bank Peers	**1**	**2**	**3**	**4**
		Event windows for up to			
		3 days	5 days	7 days	9 days
	Pre-event window	[-1 0]	[-2 0]	[-3 0]	[-4 0]
1	CAAR	0.34%	0.55%	0.48%	0.56%
	t-test	(0.57)	(0.69)	(0.35)	(0.54)
	Post-event window	[0 +1]	[0 +2]	[0 +3]	[0 +4]
2	CAAR	0.45%	0.74%	1.04%	0.81%
	t-test	(1.81) [c]	(0.67)	(0.93)	(0.56)
	Event window	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
3	CAAR	0.38%	0.62%	0.54%	0.62%
	t-test	(1.63)	(1.02)	(0.69)	(0.79)
	Event window	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
4	CAAR	0.40%	0.91%	1.13%	0.99%
	t-test	(0.94)	(0.47)	(0.56)	(0.40)
5	Mean ARCH coefficient		0.140		
	t-test		(3.83)		
6	Mean GARCH coefficient		0.570		
	t-test		(7.34)		
7	Mean volatility persistence		0.710		

	Panel B: Insurance Peers				
		Event windows for up to			
		3 days	5 days	7 days	9 days
	Pre-event window	[-1 0]	[-2 0]	[-3 0]	[-4 0]
1	CAAR	0.48%	0.77%	0.62%	0.43%
	t-test	(1.91) [c]	(2.48) [b]	(1.81) [c]	(1.09)
	Post-event window	[0 +1]	[0 +2]	[0 +3]	[0 +4]
2	CAAR	0.50%	0.39%	0.80%	1.49%
	t-test	(2.15) [b]	(1.75) [c]	(2.27) [b]	(2.06) [b]
	Event window	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
3	CAAR	0.31%	0.96%	0.80%	0.61%
	t-test	(1.86) [c]	(2.70) [a]	(2.15) [b]	(1.50)
	Event window	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
4	CAAR	0.66%	0.85%	1.11%	1.60%
	t-test	(2.22) [b]	(2.32) [b]	(2.32) [b]	(1.80) [c]
5	Mean ARCH coefficient		0.130		
	t-test		(3.13)		
6	Mean G ARCH coefficient		0.640		
	t-test		(9.65)		
7	Mean volatility persistence		0.770		

The sample consists of 40 bank and 33 insurance peer portfolios pertinent to the bank-insurance announcements. The reported values are cumulative average abnormal returns. Abnormal returns are calculated using the market model via a GARCH estimation process. CAAR stands for cumulative average abnormal returns. ARCH and GARCH coefficients represent the average of all peer portfolios (bank/insurance), while the average standard errors are calculated using the following specification: $\overline{s.e.} = \frac{1}{n}\sqrt{\sum_{i=1}^{n} s.e.\,(\hat{b}_i)^2}$, where $\overline{s.e.}$ is the average standard error and $s.e.\left(\hat{b}_i\right)$ the individual portfolio ARCH and GARCH standard errors.

a/b/c denote significant CAAR at the 0.01/0.05/0.10 level (two-tailed test) for the pertinent event period.

Looking at the panel A that presents the results for bank peers it is evident that on the announcement day [0 0] bank peers exhibit a positive reaction with an abnormal return of 0.38% (column 1, row 3). The corresponding excess return for insurance

peers (panel B, column 1, row 3) is of similar magnitude (0.31%), yet significant at the 10% level, indicating the presence of contagion effects. These effects are becoming more evident when the analysis focuses on the post-event windows. The excess return for bank peers becomes greater in magnitude (0.45%) and significant at the 10% level (panel A, column 1, row 2), while the analogous figure for insurance peers is 0.50% and significant at the 5% level (panel B, column 1, row 2).

Looking at the rest of the time intervals an interesting divergence arises between the results of the bank peers and insurance peers. All remaining pre-event, post-event and symmetric windows for bank peers show positive but insignificant valuations (panel A). The contagion effects on bank peers seem to dissipate quickly, indicating that the banking peers quickly absorb any shocks stemming from the bancassurance announcements. On the contrary, the transmission of the shocks to the insurance industry is stronger and takes longer to complete. This is evident when the abnormal returns for the remaining windows are examined (panel B). All excess returns are positive and most of them significant at the 5% level, while their significance is sustained up to nine days around the events. In particular, the effects over the post-event period (row 2) exhibit a growing trend as the windows are extended, reaching a maximum figure of 1.49% for the 5-day [0 +4] window, while a similar pattern is observed for the symmetric windows (row 4). The effects over the pre-event windows are positive and significant, up to the 4-day [-3 0] window. It is important to note that the magnitude of the insurance peers' excess returns is greater than that of bank peers for the majority of windows surrounding the event period.

In summary, the results indicate that shocks from bank-insurance deals spillover to the financial sector. Furthermore, the spillover effects are of contagion nature in that both bank peers and insurance peers exhibit excess returns that are in the same direction as those experienced by the acquiring banks. Nevertheless, the effects on insurance peers are stronger and sustain themselves over a longer period of time surrounding the events' announcement. Given that excess returns reflect investor expectations, a rational explanation for the above results can be the following: The market might be anticipating that the peer insurance companies might become future targets of banking institutions. On the contrary, peer banks do not have the same chances of being acquired – within the bancassurance context – given that assurebanking partnerships are less frequent and less likely to produce similar gains. The poor reaction of bank peers might also indicate that investors anticipate that the

bancassurance partnerships will place bank peers at a competitive disadvantage to the acquiring banks operating within the same industry/market.

The above results are somewhat comparable to those reported in Johnston and Madura (2000) and Carow (2001a). Both papers report a positive reaction by large banks, brokerage firms and insurers to the Citicorp-Travelers merger. One should be careful, however, in making direct comparisons because a) the current framework considers the average spillover effects of a large cross-section of domestic and international bank-insurance mergers, while the former studies measure the contagion-competitive effects of a specific announcement, and b) the Citicorp-Travelers merger was a distinct case challenging the then existing U.S. regulatory barriers on product diversification. Moreover, it is notable that at Citigroup, the much talked about cross-selling synergies took place on the corporate and not on the retail banking side and, as such, we have to exercise due care in generalizing the findings from these studies. In addition, the fact that insurance peers experience positive results – possibly due to investor anticipation that they will become future targets of banks – is also consistent with the literature on banking, which shows the target firms gain as a result of M&As (Amel, Barnes, Panetta and Salleo, 2004). Finally, the above results are also somewhat similar with studies on contagion, which report strong return-related spillover effects across small financial intermediaries (Elyasiani, Mansur and Pagano, 2007), or contagion effects from banking failures or distress announcements (Aharony and Swary, 1983; 1996; Brewer and Jackson, 2002), respectively.

7.4.3. Determinants of Bidder Excess Returns

This section aims to assess the determinants of bidder abnormal performance using a cross sectional framework. In particular, the estimated excess returns are regressed on a selection of accounting data, deal specific variables and geographical characteristics. A general to specific methodology is employed that uses a dynamic model specification to identify the factors that are statistically significant across different time windows. Equation (7.9) represents the initial model specification, while the final model (equation 7.10) is presented in Table 7.4. Previous studies have explored the determinants of abnormal returns from bank-insurance deal

announcements in a similar fashion (Chen, Li, Moshirian and Tan, 2007; Cybo-Ottone and Murgia, 2000; Fields, Fraser and Kolari, 2007a; b).

$$AR_{it} = \alpha + \beta_1(OBSA_i) + \beta_2(LEV_i) + \beta_3(ROE_i) + \beta_4(RDS_i) + \beta_5(M/B_i) + \beta_6(DV\text{-}DOM_i) + \beta_7(DV\text{-}U.S._i) + \beta_8(DV\text{-}OFF_i) + \beta_9(DV\text{-}SOUGHT_i) + \beta_{10}(DIST) + \varepsilon_{it} \quad (7.9)$$

$$AR_{it} = c + \gamma_1(LEV_i) + \gamma_2(DV\text{-}OFF_i) + \gamma_3(RDS_i) + \gamma_4(DV\text{-}U.S._i) + u_{it} \quad (7.10)$$

where, AR_{it} is the estimated excess return of bidder *i* at time (event-window) *t*. The accounting variables employed are the ratio of non-interest income to total operating income (as a measure of off-balance sheet activities and functional diversification, OBSA), leverage (equity multiplier measured as assets over equity, LEV), the relative size of the deal (ratio of deal-value/market-value of bidder, RDS), two profitability measures: return on equity (ROE) or return on assets (ROA) used interchangeably, and the market to book value (M/B) ratio as a measure of growth opportunities.

The deal-specific factors include variables that account for domestic versus foreign deals (dummy equal to 1 if deal is domestic and 0 otherwise, DV-DOM), a variable that accounts for U.S. versus non-U.S. bidders (dummy equal to 1 if bidders is based in the U.S. and 0 otherwise, DV-U.S.), the consideration offered, which is the medium of payment used by the bidder (dummy equal to 1 if cash and 0 otherwise, DV-OFFER) - Thomson One Banker reports cash and stock offers; the consideration sought, which is what the bidder buys from the target (dummy equal to 1 for stock and 0 otherwise, DV-SOUGHT) - this is provided as stock versus assets by Thomson One Banker; and finally, the distance – expressed in thousands of miles[125] – between acquirer and target (DIST), which is employed as a measure of geographic diversification.

Table 7.4 presents the results of the cross section analysis. In particular, columns numbered 1 to 4 contain the results from the regressions using different time windows, while rows numbered 1 to 5 contain the variables used across all models.

[125] The distance between acquirer and target is measured as the distance between their respective headquarters, using the standard Euclidean approach. The latter is also known as "as the crow flies" measure, and it is a uniform standard, offering more certainty than a measure based on road miles, which will continually fluctuate as new and different routes are constructed.

Table 7.4. Multiple regression analysis of bank-insurance deals

$$AR_{it} = c + \gamma_1 (LEV_i) + \gamma_2 (DV\text{-}OFFER_i) + \gamma_3 (RDS_i) + \gamma_4 (DV\text{-}U.S._i) + u_{it}$$

			1	**2**	**3**	**4**
			Event window			
			[-1 0]	[0 0]	[0 +1]	[-1 +1]
1	*C*	*(Constant)*	0.040	0.038	0.035	0.036
			(1.75) [c]	(1.96) [b]	(1.80) [c]	(1.55)
2	*LEV*	*(Leverage)*	0.002	0.001	0.001	0.001
			(2.18) [b]	(1.90) [c]	(1.63)	(1.89) [c]
3	*DV-OFFER*	*(Payment Method)*	-0.074	-0.062	-0.050	-0.062
			(-3.92) [a]	(-3.85) [a]	(-3.13) [a]	(-3.18) [a]
4	*RDS*	*(Relative deal size)*	0.002	0.005	0.004	0.001
			(0.92)	(2.38) [b]	(1.79) [c]	(0.39)
5	*DV-U.S.*	*(U.S. Bidder)*	0.052	0.057	0.041	0.036
			(2.95) [a]	(3.81) [a]	(2.77) [a]	(1.98) [b]

The sample consists of 50 bancassurance deals announced between 1990 and 2006. After adjusting for companies with unavailable accounting data, the sample size drops to 40 deals. Abnormal returns are calculated using the market model via a GARCH estimation process. The multivariate analysis is performed using ordinary least squares.
AR stands for the abnormal returns, while *C* is the constant; *LEV* is the dummy taking into account the bidder's leverage (equity multiplier); *DV-OFFER* is the dummy variable taking into account the type of consideration offered by the bidder (cash or stock); *RDS* is the relative size of the deal to the bidder's market value; *DV-U.S.* is the dummy taking into account the U.S. acquirers. The figures in brackets indicate t-values.
a/b/c denote significant CAAR at the 0.01/0.05/0.10 level (two-tailed test) for the pertinent event period.

The results presented in Table 7.4, point to some interesting conclusions. There is a positive and significant relationship between leverage (row 2) and excess returns in all time intervals, apart from the [0 +1] window (column 3), where the coefficient becomes marginally insignificant. The economic explanation for this result can be based on the relationship between profitability and leverage. Specifically, higher leverage increases the return on equity (ROE) for a given return on assets (ROA)[126]. This in turn, increases the appeal of levered firms to investors and triggers further trading activity and higher stock prices. Abnormal returns can be associated with the asset-liability structures of financial institutions because profitability catches the attention of market participants even if this is associated with increased risk – in this case measured by leverage. Surprisingly, the results do not reveal any significant relationship between the rest of the accounting variables (see equation 7.9) and excess returns. In particular, accounting measures such as the institutions' market to book

[126] Note that ROE is the product of the ROA and equity multiplier (assets/equity), hence the impact of leverage on profitability measures. Financial analysts are familiar with the practical interaction between leverage and profitability.

value (M/B), profitability (ROE or ROA), or the non-interest income share (OBSA), do not play any significant role in the market valuations around the deal announcements. The results on geographic diversification corroborate the results reported in Stiroh (2004), but in contrast with Baele, De Jonghe and Vander Vennet (2007).

Shifting the focus to the deal specific attributes leads to a number of interesting conclusions. First, the results indicate a significant relationship between the medium of payment and the subsequent excess returns experienced by acquiring banks. Specifically, the coefficient on the indicator (dummy) variable taking into account stock offers as opposed to cash offers is negative and significant, which implies that banks bidding for insurance companies via cash offers experience smaller excess returns than those offering stock as a method of payment. In comparison with extant studies these findings are quite interesting as well as intuitive[127]. In general, the literature on financial institutions has documented negative and/or insignificant results for the bidders (Amel, Barnes, Panetta and Salleo, 2004). This stands in contrast with the positive excess returns observed here for the bancassurance mergers. The explanation may be that since bancassurance deals provide positive benefits to the shareholders, markets may manifest these benefits in their preference for the medium of payment offered. To elaborate, since equity financing by bidders provides for sharing of future wealth (or future misery) with the shareholders of the acquired firms, depending on the market's perception of the particular deal, stock consideration for the profitable bancassurance deals will and cash consideration will not mirror the investors' preferences. As a consequence, cash consideration would be perceived negatively and would produce either a lower positive or even negative excess returns compared to the alternative of stock financing.

[127] The literature on methods of payment suggests that the choice of the medium offered conveys information about the bidder's assessment of either its own value or the value of the target (Franks, Harris and Titman, 1991). More specifically, Loughran and Anand (1997) and Raghavendra Rau and Vermaelen (1998) suggest that managers who believe that their stock is overvalued (undervalued) will pay with stock (cash). Empirical evidence points to lower or negative bidder abnormal returns for stock financed acquisitions, while higher or positive for cash-financed acquisitions (Alan, 1997; Franks, Harris and Titman, 1991; Raghavendra Rau and Vermaelen, 1998). Similar findings are reported in Travlos (1987) who examines the relation between the medium of payment and bidder abnormal returns around corporate takeover announcements. He also suggests that this happens because the market participants interpret a cash offer as good news and a common stock exchange offer as bad news about the bidding firm's true value. On the other hand, Alan (1997) reports negative and significant abnormal returns related with cash offers when the CAPM model is used to extract excess returns. Fields, Fraser and Kolari (2007a) find insignificant results, while Chang (1998) finds insignificant bidder excess return for cash offers and positive and significant bidder excess return for stock offers.

Second, the results point to a positive and significant relationship between the relative size of the deal (ratio of deal value to the market value of bidder, RDS) and bidder excess returns. This implies that the market considers scale economies and synergies in the joint production of bank-insurance products, gains through larger internal markets, or other indirect benefits such as "too big to fail" guarantees, when valuing bank-insurance deals. The latter is in line with Chen, Li, Moshirian and Tan (2007) who report similar findings for this ratio. Third, the results point to a significant relationship between the geographic origin of the bidder and excess returns. In particular, the coefficient on the dummy variable taking into account U.S. bidders is positive and significant, implying that U.S. bidders exhibit higher valuations than their non-U.S. counterparts. A plausible explanation might be that the recent abolishment of the regulatory hedges in the U.S. financial services industry (FSMA, 1999), has paved the way for synergistic gains via the creation of financial conglomerates. On the other hand, it could be that case that the mere size of the U.S. market is an important contributing factor. Finally, the distance between the bidder and target (DIST) and the status of the deal as domestic versus cross border (DV-DOM) do not play any significant role in the valuations of the bidders. Distinction between domestic versus cross-border deals (DV-DOM), and the distance between the acquirer and target (DIST) are found to play insignificant valuation roles. The growing degree of market integration across national borders and the notion that geographic distance plays a lesser and lesser role in production and marketing of intermediation services (Berger and DeYoung, 2006) are in line with the results here. On the other hand, recent evidence tends to support the idea of greater synergies when the language barriers fall, namely when mergers are domestic (Buch and DeLong, 2004). Nevertheless, the above results do not support this notion.

7.4.4. Risk Decomposition

Having looked at the effects of bank-insurance mergers on the stock prices of acquirers and their peers this section shifts the attention to the risk element. In spite of the wealth effects, the effects on risk, if any, are of great importance to investors, regulators and customers alike. This is due to the relationship between risk and return and more specifically the possibility of risk-return trade-offs. In particular, it is likely that as the bidder/peer returns rise in response to the deal announcements, these

institutions trade off the higher returns for a higher level of risk. Although such a trade-off is not necessary, its presence could cast a shadow of doubt on any return-related gains from bank-insurance. Therefore, analysing the risk effects at this stage is considered essential, given the fact that looking at the return effects in isolation would only provide a partial picture.

Furthermore, the analysis here is considered important as it adds further evidence to the stream of academic research focusing on the risk effects of bancassurance, which has produced rather mixed results (Allen and Jagtiani, 2000; Boyd and Graham, 1986; 1988; Boyd, Graham and Hewitt, 1993; Genetay and Molyneux, 1998; Lown, Osler, Strahan and Sufi, 2000; Nurullah and Staikouras, 2008).

Following the previous sections a GARCH framework is also applied here as it is considered more suitable for analysing equity movements. The methodological approach used here, allows the decomposition of total risk into its systematic and idiosyncratic components, for the pre- and post-announcement periods. Such an approach, within a GARCH framework, is applied for the first time to analyse the risk-effects of mergers and acquisitions and specifically those between banks and insurance companies.

In particular, capital market data and a single index model (equation 7.1) are used to decompose the total equity risk of each bidder bank into its systematic and unsystematic components (equation 7.8). Once the analysis has been carried out for both the pre- and post-announcement periods, the figures are compared. The final results are presented in Table 7.5. Panel A presents the decomposition of total return risk of acquiring firms in the period before the announcement, while panel B deals with the risk decomposition for the period following the announcement. The changes in the risk components and other variables are presented in panel C.

Table 7.5. Risk decomposition of bidder banks' stock returns

Panel A. Pre-announcement Day -250 to Day -1

	TR	=	$\beta^2 \times Hm$	+	*Hu*
	4.583	=	1.644	+	2.939
	100%	=	35.9%	+	64.1%

Mean R	0.066%	Standard deviation of R	0.0029
Mean R_m	0.021%	Standard deviation of R_m	0.0015
Mean β	0.920	Standard deviation of β	0.3988
Mean β^2	1.001	Standard deviation of β^2	0.7680
Mean Hm	1.672		

Panel B. Post-announcement Day +1 to Day +250

	TR	=	$\beta^2 \times Hm$	+	*Hu*
	3.989	=	1.460	+	2.529
	100%	=	36.6%	+	63.4%

Mean R	0.048%	Standard deviation of R	0.0031
Mean R_m	0.013%	Standard deviation of R_m	0.0020
Mean β	0.862	Standard deviation of β	0.3935
Mean β^2	0.894	Standard deviation of β^2	0.6615
Mean Hm	1.735		

Panel C. Changes in risk pre- and post-announcement [1]

	Δ *(TR)*	=	$\Delta(\beta^2 \times Hm)$	+	Δ *(Hu)*
	-0.594	=	-0.184	+	-0.410
% change	-13.0%		-11.2%		-13.9%

Δ (Mean R)	-0.018%	Δ (Standard deviation of R)	0.0002
Δ (Mean R_m)	-0.008%	Δ (Standard deviation of R_m)	0.0005
Δ (Mean β)	-0.058	Δ (Standard deviation of β)	-0.0053
Δ (Mean β^2)	-0.107	Δ (Standard deviation of β^2)	-0.1065
Δ (Mean Hm)	0.063		

The table presents the shift in relative importance of risk factors composing total bank bidder return risk before and after bank-insurance partnership announcements. The sample consists of 50 bank-insurance deals announced between 1990 and 2006. All the risk measures have been calculated using the models described in equation (7.8). The conditional variance terms are multiplied by 10^4.
R = return on the portfolio, Rm = return on the market
TR = total risk, β = hedge ratio, Hm = conditional variance, Hu = residual conditional variance.
[1] Negative values indicate reduction in the risk or other measures, while positive values indicate an increase.

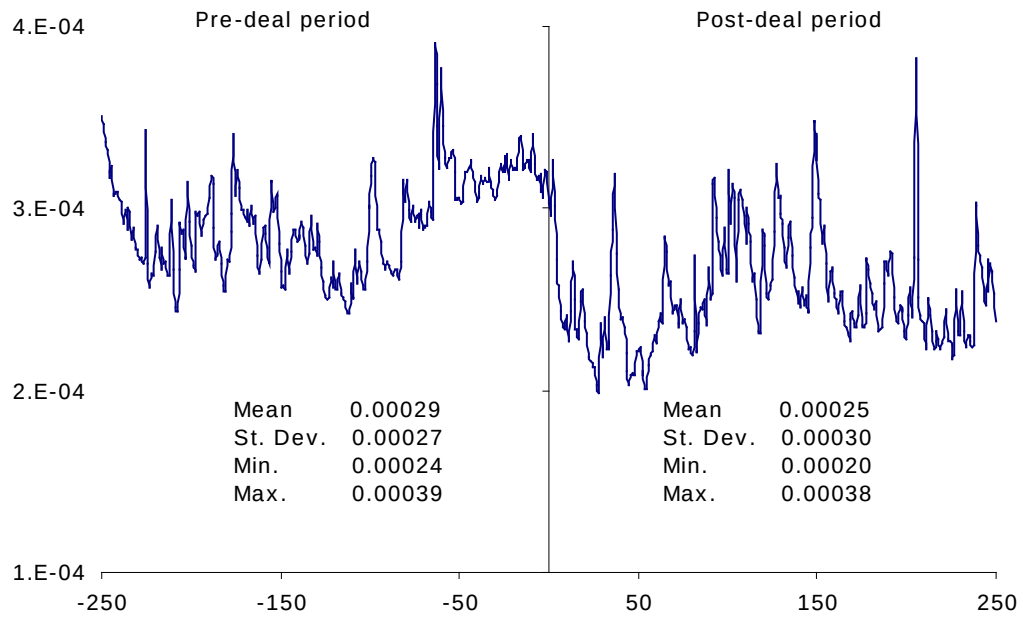
Looking at the figures reported in Table 7.5, it is evident that the overall risk (*TR*) of the acquiring firms decreases between the pre- and post-announcement periods. Specifically, the figure drops from 4.583 (panel A) to 3.989 (panel B), demonstrating a decline of 0.594, or otherwise 13% (panel C). A closer look at the components of total risk reveals that the larger part of this decrease is due to the decline in the

residual (or sector-specific, *Hu*) risk, which diminishes from 2.939 to 2.529 (panels A/B, respectively), or a relative decline of 13.95% (panel C). Similarly, the market risk component ($\beta^2 \times Hm$) drops from 1.644 to 1.460 (panels A/B, respectively) or by 11.20% (panel C). Overall, the results suggest a reduction in total risk (TR) in the post-announcement phase. However, a closer look at the contributions of the market and residual risk components on total risk reveals some interesting results. The latter figures remain almost unchanged. In particular, the relative importance of market risk, which was 35.9% in the pre-deal period, increases to 36.6% in the post-deal period, while the relative importance of the idiosyncratic risk component falls from 64.1% to 63.4%, or an equivalent decline of 70 basis points, in the post-announcement phase.

A number of interesting conclusions can be drawn from the analysis above. First, it seems that the diversification into bancassurance increases the share of the acquiring institutions in the total market basket, or brings them closer to the large firms in the index and, thus, increases their market risk exposure. Conversely, the decline in the unsystematic risk of these firms reflects the smaller share of the idiosyncratic factors in the financial services industry. One reasonable explanation might be that bancassurance is expected to increase the quality of their financial management and strategic policy. An alternative justification might be that that the additional non-interest income coming from bancassurance operations is expected to produce the much desired diversification benefits, thus decreasing bank idiosyncratic risk. At the same time, the increased scale of the combined entity might trigger investor expectations for implicit access to the government's safety net through too-big-to-fail guarantees and greater internal markets. On the other hand, increased co-movement between these companies and the overall market, implied by the higher systematic component, raises concerns about systemic risk. This is demonstrated by the impact that large financial intermediaries have on the economic system and subsequently on the society. A vivid example is the recent credit crisis.

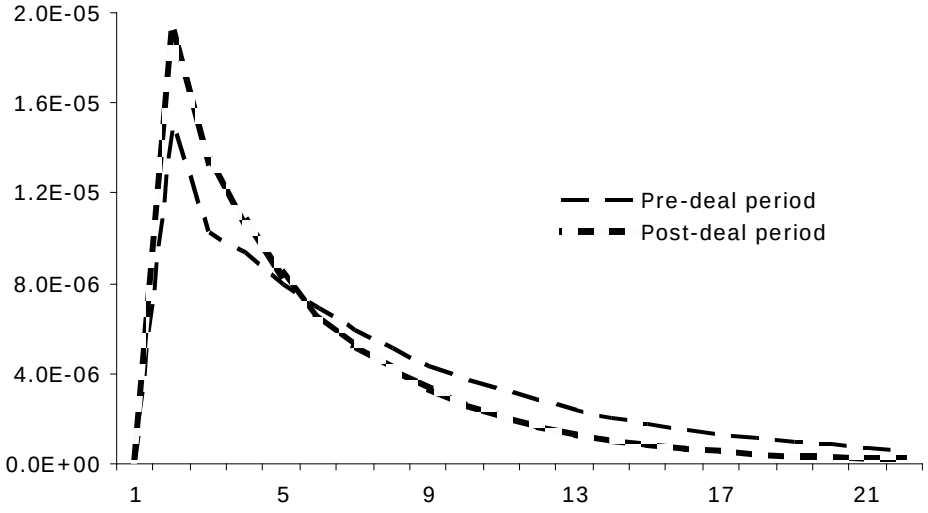
Figure 7.1 below presents the conditional variances of the acquiring bank-insurance firms in the sample in the pre- and post-announcement periods. According to the statistics reported in Figure 7.1, the mean conditional variance in the post-deal period is somewhat smaller (0.00025 compared to 0.00029) and the associated standard deviation is slightly larger (0.00030 compared to 0.00027). Overall, the figure illustrates some reduction in the conditional variance of the bank bidders' equity returns in the post-deal period.

Figure 7.1. Conditional variance of bidder equity returns during the pre- and post-deal phase



An impulse response function (IRF) analysis has also been carried out. This shows how banks' variance measures react to a one standard deviation shock in the conditional variance of the stocks in the pre- and post-announcement periods. Figure 7.2 shows that after the exogenous shock takes place, the expected post-deal corporate structure absorbs it more quickly, than the firm prior to the announcement. As can be seen in Figure 7.2, although the initial reaction to the shock is higher in the post-deal phase, compared to the pre-deal phase, it takes six days for the post-deal variance to fall below the pre-deal variance. Overall, it can be argued that there is a slight decline in risk due to the higher market expectations related to the establishment of the bank-insurance structures. This benefit strengthens the observed excess returns surrounding the announcement date of the deal, on the acquiring banks, as discussed earlier.

Figure 7.2. Impulse response analysis on the conditional variance of equity returns



7.4.5. Risk Spillover Effects on Peer Institutions

The current global economic system is characterised by strong interdependencies both within and between economies/sectors. With spillover effects being the norm rather than the exception, if an economy experiences a major shock it is very difficult to contain the damage from spreading within and across economies/sectors. The recent banking crisis caused the S&P500 index to shed more than 45% of its value between June 2007 and November 2008, while the effects rapidly spilled over to the rest of the world and developed into a global economic shock, resulting in plummeting stock markets and wide-spread bank failures. As such, it is not a coincidence that the unprecedented trend towards convergence in the financial services industry – as witnessed by mega-mergers and the creation of financial conglomerates – raises considerable concerns regarding the effects on the stability of the financial system (Herring and Santomero, 1990). One of the most important issues attracting scrutiny from both academics and regulators alike is the effects of convergence on systemic risk. In fact, the concerns regarding convergence are based on the notion that, as Carey and Stulz (2005) propose, risk may spillover more easily across financial institutions (FIs) if the latter are highly interconnected, something that may lead to system-wide problems. Indeed, several studies on the equity returns of FIs reveal strong linkages caused by information flows across these (Flannery, 1998). Specifically, they verify the existence of wealth-spillover effects across FIs

(Elyasiani, Mansur and Pagano, 2007) and in particular those caused by banking/insurance failures or distress announcements (Aharony and Swary, 1983; 1996; Brewer and Jackson, 2002; Kaufman, 1994). The risk-spillover effects, however, have received attention only recently, with Elyasiani, Mansur and Pagano (2007) reporting strong volatility-spillover effects across FIs and Elyasiani and Mansur (2003) pointing to strong interest-rate and idiosyncratic volatility spillover effects in the equity prices of banks across the U.S., Japan and Germany. Focusing on bank-insurance mergers, an issue of great importance to stakeholders and regulators is whether these deals have a negative impact on the systemic risk (increase of) of the financial sector. If this is true, regulators should apply the necessary steps/policies to minimize that risk. On the other hand, if bank-insurance deals have a positive impact on systemic risk (decrease of), then incentives for the creation of such hybrid structures should be strengthened. Considering the importance of these issues, this section proceeds to assess the existence of risk spillover effects emanating from bank-insurance deals to the financial services industry, and more specifically to the banking and insurance sectors. This is the first time the risk spillover effects from bank-insurance deals are examined. Table 7.6 and Table 7.7 present the risk decomposition analysis for bank and insurance peers, respectively.

Table 7.6. Risk decomposition of bank peer portfolio returns

Panel A. Pre-announcement Day -250 to Day -1

	TR	=	$\beta^2 \times Hm$	+	Hu
	2.486	=	1.367	+	1.119
	100%	=	55.0%	+	45.0%

Mean R	0.048%	Standard deviation of R	0.0025
Mean R_m	0.021%	Standard deviation of R_m	0.0022
Mean β	0.817	Standard deviation of β	0.2670
Mean β^2	0.738	Standard deviation of β^2	0.4075
Mean Hm	1.939		

Panel B. Post-announcement Day +1 to Day +250

	TR	=	$\beta^2 \times Hm$	+	Hu
	2.194	=	1.263	+	0.931
	100%	=	57.6%	+	42.4%

Mean R	0.019%	Standard deviation of R	0.0025
Mean R_m	0.005%	Standard deviation of R_m	0.0022
Mean β	0.824	Standard deviation of β	0.2290
Mean β^2	0.730	Standard deviation of β^2	0.3652
Mean Hm	1.847		

Panel C. Changes in risk pre- and post-announcement [1]

	$\Delta(TR)$	=	$\Delta(\beta^2 \times Hm)$	+	$\Delta(Hu)$
	-0.292	=	-0.104	+	-0.188
% change	-11.7%		-7.6%		-16.8%

Δ (Mean R)	-0.029%	Δ (Standard deviation of R)	0.0000
Δ (Mean R_m)	-0.016%	Δ (Standard deviation of R_m)	0.0000
Δ (Mean β)	0.007	Δ (Standard deviation of β)	-0.0380
Δ (Mean β^2)	-0.008	Δ (Standard deviation of β^2)	-0.0423
Δ (Mean Hm)	-0.092		

The table presents the shift in relative importance of risk factors composing total return risk of bank peer portfolios before and after bank-insurance partnership announcements. The sample consists of 40 bank peer portfolios. All the risk measures have been calculated using the models described in equation (7.8). The conditional variance terms are multiplied by 10^4.

R = return on the portfolio, Rm = return on the market

TR = total risk, β = hedge ratio, Hm = conditional variance, Hu = residual conditional variance.

[1] Negative values indicate reduction in the risk or other measures, while positive values indicate an increase.

Table 7.7. Risk decomposition of insurance peer portfolio returns

Panel A. Pre-announcement Day -250 to Day -1

	TR	=	$\beta^2 \times Hm$	+	*Hu*
	3.060	=	1.197	+	1.863
	100%	=	39.1%	+	60.9%

Mean R	0.044%	Standard deviation of R	0.0028
Mean R_m	0.021%	Standard deviation of R_m	0.0022
Mean β	0.778	Standard deviation of β	0.2454
Mean β^2	0.664	Standard deviation of β^2	0.3437
Mean Hm	1.678		

Panel B. Post-announcement Day +1 to Day +250

	TR	=	$\beta^2 \times Hm$	+	*Hu*
	2.301	=	1.029	+	1.272
	100%	=	44.7%	+	55.3%

Mean R	0.042%	Standard deviation of R	0.0027
Mean R_m	0.031%	Standard deviation of R_m	0.0020
Mean β	0.803	Standard deviation of β	0.2269
Mean β^2	0.695	Standard deviation of β^2	0.3195
Mean Hm	1.484		

Panel C. Changes in risk pre- and post-announcement [1]

	Δ *(TR)*	=	$\Delta(\beta^2 \times Hm)$	+	Δ *(Hu)*
	-0.759	=	-0.168	+	-0.591
% change	-24.8%		-14.0%		-31.7%

Δ (Mean R)	-0.002%	Δ (Standard deviation of R)	-0.0001
Δ (Mean R_m)	0.0100%	Δ (Standard deviation of R_m)	-0.0002
Δ (Mean β)	0.025	Δ (Standard deviation of β)	-0.0185
Δ (Mean β^2)	0.031	Δ (Standard deviation of β^2)	-0.0242
Δ (Mean Hm)	-0.194		

The table presents the shift in relative importance of risk factors composing total return risk of insurance peer portfolios before and after bank-insurance partnership announcements. The sample consists of 33 insurance peer portfolios. All the risk measures have been calculated using the models described in equation (7.8). The conditional variance terms are multiplied by 10^4.

R = return on the portfolio, *Rm* = return on the market

TR = total risk, β = hedge ratio, *Hm* = conditional variance, *Hu* = residual conditional variance.

[1] Negative values indicate reduction in the risk or other measures, while positive values indicate a respective increase

Based on the figures reported in Table 7.6 and Table 7.7 (panels A/B, column 1, row 1), the overall risk (*TR*) of bank and insurance peers decreases in the post-announcement periods. Interestingly, the risk reduction is greater for insurance peers (24.8%) than for bank peers (11.7%) as shown in panels C, column 1, row 2, in both

tables. Furthermore, looking at the changes in the components of total risk for bank and insurance peers, it is evident that the reduction is mostly attributable to the reduction in the firm-specific components of risk (*Hu*). Similar to the findings for total risk, the reduction in the idiosyncratic component is greater for the insurance peers (31.7%; Table 7.7) than for bank peers (16.8%; Table 7.6). Looking at the changes in the market risk components ($\beta^2 \times Hm$) of peer institutions it is evident that bank-insurance deals have an impact on the market risk component of peer institutions, yet this is limited to a 7.6% reduction for bank peers and to a 14.0% reduction for insurance peers, as shown in Table 7.6 and Table 7.7 under panels C.

Figure 7.3 and Figure 7.4 below present the conditional variances of the bank peer and insurance peer equity returns, respectively, during the pre- and post-announcement periods. According to the statistics reported in the figures, the mean conditional variance of bank peers is reduced in the post-deal period (from 0.00011 to 0.00009) and the associated standard deviation remains constant (0.00002). The mean conditional variance of insurance peers shows a greater reduction in the post-deal period (from 0.00019 to 0.00013), verifying the results in table Table 7.7. Nevertheless, the associated standard deviation in this case exhibits a small increase. Overall, the figures illustrate a reduction in the conditional variances of the peers' equity returns in the post-deal period.

Figure 7.3. Conditional variance of bank peer equity returns during the pre- and post-deal phase

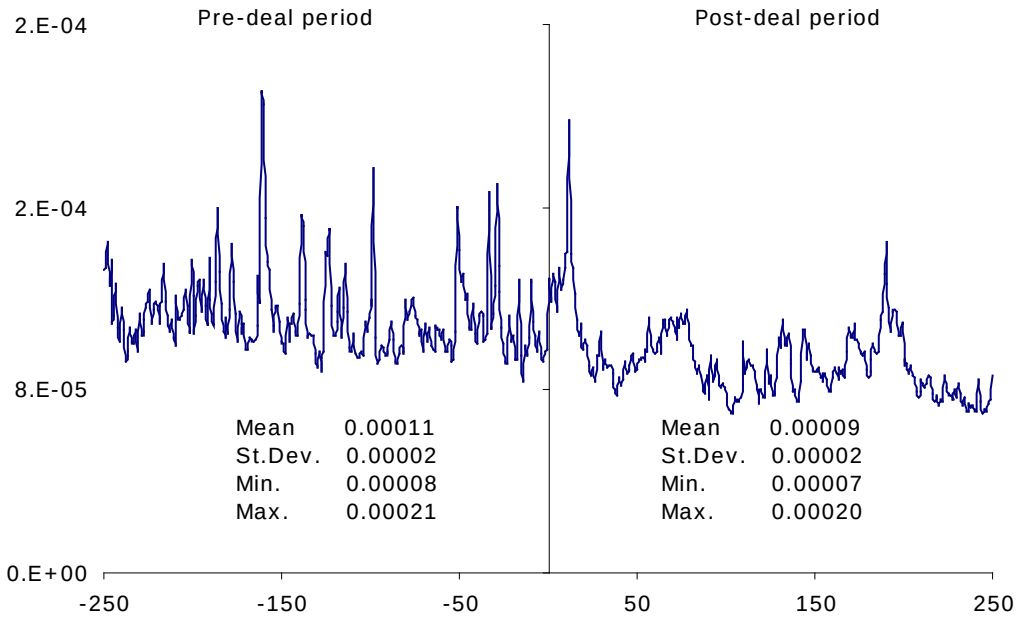
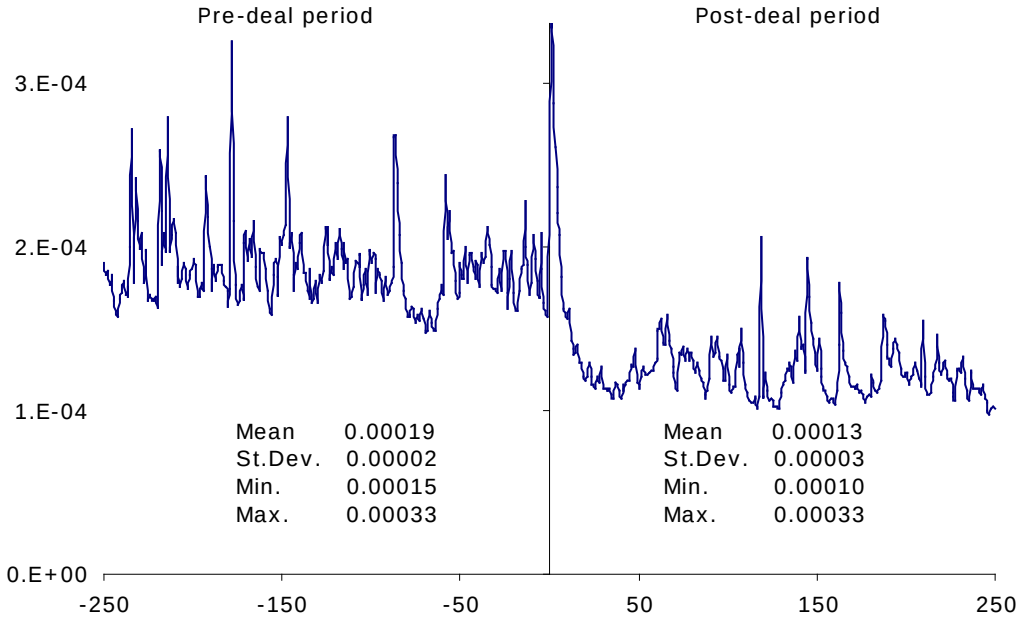


Figure 7.4. Conditional variance of insurance peer equity returns during the pre- and post-deal phase



In general, the results point to the following conclusions. First, risk spillover effects caused by bank-insurance deals not only exist but are also of contagion nature, given that peer institution risk changes are in the same direction as risk changes

experienced by acquiring firms. This should eliminate the concerns discussed above, given that the risk spillover effects caused by bank-insurance partnerships lead to a wider risk reduction across peer FIs. Second, it is clear that insurance peers react more positively to bank-insurance deal announcements, exhibiting greater reductions in risk, post-announcement. Similar to the discussion in section 4.4.2, an explanation for this might be the existence of dissimilar investors' expectations about the future of banks and insurers.

The overall findings are to some extent comparable to Elyasiani, Mansur and Pagano (2007) and Elyasiani and Mansur (2003) who report strong volatility spillover effects across banks using an international sample and across commercial and investment banks and insurers, respectively. Their results in essence suggest that adverse (benign) risk shocks from one sector can be transferred easily to another sector or to the same sector in different parts of the world. Our findings support this notion, in that, the risk reduction in the equity prices of bank bidders following bank-insurance deal announcements, spills over to peer banks and insurance companies. The fact that the relation is positive – peers exhibiting risk reductions as well – is in favour of the bank-insurance framework, as the latter not only reduces all risk components of acquiring firms, but also acts as a mechanism to reduce the overall risk of FIs.

7.5. CONCLUSION

This chapter employs and event study methodology and risk decomposition approach, within a GARCH framework, in order to investigate a) the effects of bank acquisitions of insurance companies on the returns and risk of the acquiring banks, b) whether these effects spillover to the banking and insurance peers, and c) whether the spillover effects are of contagion or competitive nature. The GARCH framework is preferred as it accounts for the clustering pattern of errors and persistence of shocks to the system. Finally the determinants of the magnitudes of excess returns for the acquiring banks are also examined. This is the first time an event study and risk decomposition approach are used within a GARCH framework in order to assess the impact of actual bank-insurance mergers on the risk-return profiles of acquiring institutions. What is more, the risk-return spillover effects have not been examined in the context of actual bank-insurance deals.

The event study analysis reveals that acquiring banks and their peer banks and insurers experience positive abnormal returns in response to the announcement of the mergers. The effect on the acquiring banks dissipates within one day after the announcement, consistent with the notion of efficient markets. The analysis of the reaction of peers reveals the presence of spillover effects that are of contagion nature. Specifically bank peers react positively to the announcements but the effects dissipate quickly (within one day following the announcements), while the effect on insurance peers is not only stronger, but is also sustained for a longer period of time following the announcements (up to nine days). The cross-section analysis reveals a positive relationship between bank leverage, relative deal size and whether the bidder is a U.S. bank and excess returns. On the other hand, there is a negative relationship between cash financed deals and excess returns. When risk is considered, the bank-insurance deal announcements are found to bring about a slight decline in risk for the bidding firms that spills over to the peer institutions. The fact that the relation is positive – peers exhibiting risk reductions as well – is in favour of the bank-insurance framework, as the latter not only reduces all risk components of acquiring firms, but also acts as a mechanism to reduce the overall risk of FIs. The results provide some support for the combination of banking activities with insurance services and for the passage of the European Directive (1989) in the E.U. and the Financial Services

Modernization Act (1999) in the U.S. The implication for regulators is to allow and perhaps encourage such hybrid enterprises. Similarly, financial firm managers seeking to improve their performance in terms of profitability and risk should consider deals that bring together these two types of financial service providers. Investors in the market place may also find the stocks of financial firms combining the banking and insurance enterprises a more suitable vehicle to invest than those operating purely in banking or insurance sectors.

8. CONCLUDING REMARKS

In recent years market forces have facilitated the creation of new capital markets products that closely resemble the services offered by financial intermediaries. These innovations coupled with the increasing popularity of capital markets have resulted in a disintermediation process, where traditional intermediaries have witnessed plunging market shares and revenues. These forces have pushed towards a structural evolution in the traditionally fragmented functions of financial intermediaries. After a series of lagged responses between regulation, circumvention and deregulation, the consolidation and the creation of very large, multi-product firms with global reach and power is currently the norm rather than the exception. One of the considerable transformations in the financial services industry has been the collaboration between banks and insurance companies through bancassurance.

The increasing popularity of hybrid structures such as universal banks, financial conglomerates, bank-securities partnerships and bancassurance has triggered a long-lasting debate among scholars and policymakers. The debate in the academic literature extends from theoretical contributions with regards to the benefits and concerns related to this trend, to empirical investigations that attempt to shed light on the effects of this phenomenon on the financial industry and its participants. In addition, the effects of the recent financial crisis have led to renewed attention on the level of interconnectedness of modern financial institutions and the inability of the current regulatory and supervisory system to prevent the systemic consequences of what started as a mere banking crisis. The above have facilitated the appearance of claims for re-regulation, including proposals for 'narrow banking' through the introduction of firewalls such as those imposed by the Glass-Steagall Act. In effect, a growing number of policymakers have suggested that the size and permissible activities of financial institutions should be re-constricted due to increased systemic risk. Therefore, an important issue that must be *a priori* clarified by policymakers, is the distinction between types of bank diversification that add value for shareholders without adding to systemic risk, and those that might pose a threat to financial stability, irrespective of the possible benefit to the individual firms' shareholders. The conflicting results of the contributions on the debate on the risk-return effects of

financial conglomerates, coupled with the limited and/or mixed results on bank-insurance specifically, have been the motivation for this thesis.

This thesis delves into the effects of mergers and acquisitions between banks and insurance companies on the risk-return attributes of acquiring firms and those of the banking and insurance sectors. In this respect, the current thesis contributes in a substantial way to the extant research, thereby extending the literature, in the following ways.

First, it employs the most comprehensive sample of international bank-insurance deals, covering the period from 1990 to 2006. This period represents the most active period in terms of bank-insurance partnerships and, as such, incorporates the largest and most important deals of this type. Second, it distinguishes deals between banks and insurance companies from those between banks and insurance agencies/brokers. This is to allow for differences in the risk-return profiles of banks when they merge with insurance underwriters, as opposed to merging with insurance agents/brokers. As such, it deviates from a large volume of event studies in the extant literature that do not make this important distinction. Third, for the first time in the literature, the wealth effects of all available bank-insurance divestitures and spin-offs are evaluated. Fourth, it applies for the first time in the literature a risk decomposition approach in order to examine the effect of bancassurance partnerships on the risk components of acquiring firms before and after the deals' announcement / completion. Fifth, it provides original evidence on the determinants of total, market and systematic risk on a pre- and post-merger basis. Sixth, it applies a GARCH methodology within an event study and decomposition framework in order to examine the wealth and risk effects of bank-insurance mergers on acquiring banks. From the perspective of event studies, this is the first time such a framework is being applied to examine the wealth effects of bancassurance deals. From the risk perspective, this thesis offers a new methodological framework for the decomposition of total return risk into its systematic and idiosyncratic components. Finally, the current research offers novel results with respect to the existence of risk-return spillover effects from bank bidders – in bancassurance mergers – to their bank and insurance peers.

The event study results suggest that bidders experience positive and significant excess returns on and around the announcement day(s) of bancassurance deals. As such, the overall conclusion is that bancassurance creates value for the stockholders of acquiring firms. On the one hand however, banks increase shareholder value in bids

for insurance firms, while on the other hand insurance companies do not add value in analogous bids for banks. Insignificant stock price reactions are also observed for bank acquisitions of insurance agencies. Results also show that investors expect more synergies to be realised through domestic bancassurance deals, whereas large deals are found to be superior to small deals. Furthermore, U.S. bidders experience higher price adjustments than bidders from other geographic regions. European and Canadian bidders experience positive and significant valuations while Australasian acquirers exhibit negative but insignificant excess returns. Finally, the examination of bancassurance divestitures and spin-offs suggests that the market is indifferent with respect to exits from the bancassurance model.

The analysis of the determinants of excess returns reveals a significant negative relationship between non-interest income and bidder excess returns, indicating that the market is penalizing institutions that are already more reliant on non-interest income before the deal's announcement. What is more, it is found that the market values the potential for scale economies in bancassurance deals and also views more favourably deals where the acquiring institution is U.S. based. Surprisingly, evidence from the multivariate analysis shows that controlling for other factors simultaneously, bank bidders lose value. The results also point to a shift in the relative importance of the determinants of bidder abnormal performance following the FSMA. Prior to the FSMA, investors value opportunities for growth, the potential for scale economies and whether the acquirer is a U.S. financial institution. In contrast, after the passage of the FSMA investors are interested in the acquirers' capacity for further functional diversification and their profitability potential.

The results of the risk decomposition analysis show that bancassurance deals do not significantly affect the total and idiosyncratic risk of acquiring institutions. However, evidence is provided that supports the notion that bank exposure to system wide shocks increases following the bank-insurance partnerships. Banks combinations with insurance agencies expose bidders to considerably higher systematic risk than bank acquisitions of insurance underwriters. Furthermore, the findings suggest that banks are more exposed to firm-specific risk than to market risk, while insurance companies are relatively equally exposed to both types of risk and, as such, bancassurance offers institutions opportunities to rebalance their risk exposures. The analysis of the determinants of risk shows that the additional non-interest income achieved through bancassurance operations is no longer positively correlated with

market betas following the mergers. Therefore, it is not diversification into insurance activities per se, that drives market betas up, but rather the increased scale of the institutions. In addition, results show that the negative and significant relationship between non-interest income share and unsystematic risk prior to the deals fades away following bank acquisitions of insurance companies, but remains significant after bank acquisitions of insurance agencies. Therefore, bank acquisitions of insurance agencies are superior to bank acquisitions of insurance underwriters, when idiosyncratic risk is considered.

Finally, the application of a special GARCH approach reveals that acquiring banks and their peers experience positive and significant stock price reactions around the announcement of the deals. As such, the reaction of peers reveals the presence of wealth spillover effects that are of contagion nature. The cross-section analysis reveals a positive relationship between bank leverage, relative deal size and whether the bidder is a U.S. bank and excess returns. On the other hand, there is a negative relationship between cash financed deals and excess returns. The bank-insurance deal announcements are found to trigger declines in the risk attributes of the bidding firms and their bank and insurer peers. The decline in the risk attributes of peers points to the existence of risk spillover effects that are of contagion nature. As such, the bancassurance model seems to be beneficial for the financial services industry as it not only reduces all risk components of acquiring firms, but also acts as a mechanism to reduce the overall risk of peer institutions.

The results of this thesis not only add to the existing body of research but also have practical application in the financial services industry. The latter can be used by managers, stockholders, bondholders, regulators and policymakers both at the firm level and the public policy level. Most of the above stakeholders can benefit from bancassurance given that it allows for synergies between banks and insurance firms. These are reflected in the positive excess returns following the bank-insurance mergers. Bancassurance can also be used as a mechanism to rebalance risk exposure of institutions. Specifically, institutions can shield themselves against unsystematic exposures, yet at the expense of a higher systematic exposure. Nevertheless, the evidence suggests that the higher systematic exposure stems from the increased scale of the combined entity following the mergers and not from bancassurance activities per se. On the other hand, regulators should provide incentives for this type of diversification given that the financial services industry benefits from bancassurance

both in terms of risk and return. A notable implication of the above findings is that bank diversification into insurance creates synergies without introducing implications for the stability of the financial system as a whole. This is in contrast to the existing evidence on bank diversification into the securities business. As such, possible regulatory changes should focus on containing the risks arising from the combination of banks with securities firms. Finally, this research provides a platform for the ex-ante evaluation of bancassurance deals in terms of risk and return effects on acquiring firms.

At this stage it is important to note that there are a number of additional issues, not examined in the academic literature that this thesis has not focused on. One of the limitations of the thesis is the fact that it does not consider the determinants of wealth effects and risk for insurance bidders. This is due to the limited availability of financial data for international insurance companies. In addition, the current study does not consider the lines of insurance operated by insurance targets prior to the deals. This is also due to the unavailability of a comprehensive database with data on insurance premiums for different lines of insurance business. A final issue that is not considered in this study is the long-term risk-return performance of institutions entering bancassurance.

Nonetheless, these areas represent a fertile ground for future research. For example, the long-term risk-return effects of bancassurance on the basis of the lines of insurance operated, can be investigated within a panel structure, provided that a comprehensive database becomes available. Another interesting area for future investigation is the examination of the risk-return effects of geographic and product diversification of financial intermediaries and specifically the analysis of the return and volatility spillover effects across financial conglomerates and markets. The important questions in this case can be the following: Does convergence in the financial services industry affect the correlations among the risk-return attributes of institutions and markets? If yes, does convergence and the creation of financial conglomerates socialise risks, while privatizing gains (Walter, 2009)?

APPENDIX A

Table A.1. Number and Value of M&As in the Financial Services Industry

Period/Region	World			US and Canada			Europe		
	Value $mil	% of Total	Number	Value $mil	% of Total	Number	Value $mil	% of Total	Number
1987 - 1991	148,605.5	5.22%	1,437	61,208.0	4.33%	992	41,961.5	5.26%	307
1992 - 1996	324,832.2	11.41%	2,627	175,594.3	12.42%	1,827	86,423.5	10.83%	492
1997 - 2001	1,659,498.1	58.28%	3,743	794,379.8	56.19%	2,102	494,438.1	61.98%	776
2002 - 2006	714,755.2	25.10%	2,448	382,483.0	27.06%	1,267	174,894.6	21.92%	469
Total	2,847,691.0	100.00%	10,255	1,413,665.1	100.00%	6,188	797,717.7	100.00%	2,044

	Africa/Middle East			Central Asia/Asia Pacific			Japan		
Period/Region	Value $mil	% of Total	Number	Value $mil	% of Total	Number	Value $mil	% of Total	Number
1987 - 1991	540.80	5.19%	4	2,765.90	3.35%	54	31,109.30	10.29%	4
1992 - 1996	739.80	7.10%	23	6,860.80	8.30%	117	36,749.80	12.15%	6
1997 - 2001	6,503.20	62.44%	81	37,827.30	45.76%	303	170,290.20	56.32%	68
2002 - 2006	2,631.60	25.27%	38	35,211.90	42.60%	422	64,220.50	21.24%	84
Total	10,415.40	100.00%	146	82,665.90	100.00%	896	302,369.80	100.00%	162

	South America		
Period/Region	Value $mil	% of Total	Number
1987 - 1991	0.00	0.00%	0
1992 - 1996	2,342.60	18.35%	27
1997 - 2001	6,189.90	48.48%	71
2002 - 2006	4,234.40	33.17%	19
Total	12,766.90	100.00%	117

Search Criteria:

Completed deals (excluding divestitures) that took place between 1987 and 2006 where at least one company was publicly traded and the percentage of shares owned by the acquiring company after the transaction was above 50%. At least acquirer or target must be a public company.

Source: Thomson Financial

Table A.2. Number and Value of M&As in the Banking Sector

Period/Region	World			US and Canada			Europe		
	Value $mil	% of Total	Number	Value $mil	% of Total	Number	Value $mil	% of Total	Number
1987 - 1991	96,218.0	6.17%	777	42,929.7	5.15%	673	17,350.7	4.88%	72
1992 - 1996	199,137.1	12.77%	1453	129,289.3	15.52%	1,229	20,912.6	5.88%	154
1997 - 2001	817,894.5	52.45%	1313	405,900.4	48.73%	925	199,071.2	56.00%	215
2002 - 2006	445,995.4	28.60%	637	254,854.9	30.60%	443	118,130.4	33.23%	114
Total	1,559,245.0	100.00%	4,180	832,974.3	100.00%	3,270	355,464.9	100.00%	555

	Africa/Middle East			Central Asia/Asia Pacific			Japan		
Period/Region	Value $mil	% of Total	Number	Value $mil	% of Total	Number	Value $mil	% of Total	Number
1987 - 1991	540.80	14.92%	1	635.60	1.97%	11	31,109.30	11.77%	4
1992 - 1996	438.30	12.09%	5	5,000.50	15.50%	13	35,788.00	13.53%	3
1997 - 2001	1,749.70	48.28%	11	18,958.80	58.77%	47	152,769.80	57.78%	21
2002 - 2006	895.40	24.71%	12	7,663.40	23.76%	29	44,748.00	16.92%	10
Total	3,624.20	100.00%	29	32,258.30	100.00%	100	264,415.10	100.00%	38

	South America		
Period/Region	Value $mil	% of Total	Number
1987 - 1991	0.00	0.00%	0
1992 - 1996	2,204.70	28.46%	18
1997 - 2001	3,817.60	49.28%	31
2002 - 2006	1,723.70	22.25%	6
Total	7,746.00	100.00%	55

Search Criteria:
Completed deals (excluding divestitures) that took place between 1987 and 2006 where at least one company was publicly traded and the percentage of shares owned by the acquiring company after the transaction was above 50%. At least acquirer or target must be a public company.

Source: Thomson Financial

Table A.3. Number and Value of M&As in the Insurance Sector

Period/Region	World			US and Canada			Europe		
	Value $mil	% of Total	Number	Value $mil	% of Total	Number	Value $mil	% of Total	Number
1987 - 1991	10,693.6	2.79%	204	1,972.2	1.31%	108	4,363.7	2.84%	67
1992 - 1996	42,533.7	11.12%	314	20,033.3	13.34%	189	20,007.0	13.00%	84
1997 - 2001	279,810.3	73.13%	614	99,987.3	66.59%	351	115,411.9	74.99%	133
2002 - 2006	49,585.2	12.96%	375	28,165.8	18.76%	233	14,112.3	9.17%	73
Total	382,622.8	100.00%	1507	150,158.6	100.00%	881	153,894.9	100.00%	357

Period/Region	Africa/Middle East			Central Asia/Asia Pacific			Japan		
	Value $mil	% of Total	Number	Value $mil	% of Total	Number	Value $mil	% of Total	Number
1987 - 1991	0.00	0.00%	0	170.70	3.89%	4	0.00	0.00%	0
1992 - 1996	54.90	11.99%	1	0.00	0.00%	0	0.00	0.00%	0
1997 - 2001	304.20	66.46%	7	3,868.00	88.15%	19	9,620.30	74.18%	6
2002 - 2006	98.60	21.54%	2	349.30	7.96%	31	3,349.40	25.82%	4
Total	457.70	100.00%	10	4,388.00	100.00%	54	12,969.70	100.00%	10

Period/Region	South America		
	Value $mil	% of Total	Number
1987 - 1991	0.00	0.00%	0
1992 - 1996	0.00	0.00%	2
1997 - 2001	0.00	0.00%	2
2002 - 2006	10.00	100.00%	2
Total	10.00	100.00%	6

Search Criteria:
Completed deals (excluding divestitures) that took place between 1987 and 2006 where at least one company was publicly traded and the percentage of shares owned by the acquiring company after the transaction was above 50%. At least acquirer or target must be a public company.

Source: Thomson Financial

Table A.4. Number and Value of Bancassurance M&As

Period/Region	World			US and Canada			Europe		
	Value $mil	% of Total	Number	Value $mil	% of Total	Number	Value $mil	% of Total	Number
1987 - 1991	12,756.8	8.39%	22	428.4	0.56%	9	12,218.3	17.2%	12
1992 - 1996	4,043.9	2.66%	47	161.2	0.21%	20	3,583.4	5.1%	21
1997 - 2001	131,160.9	86.29%	131	75,370.7	98.87%	66	52,657.3	74.2%	53
2002 - 2006	4,035.2	2.65%	110	275.2	0.36%	88	2,489.5	3.5%	15
Total	151,996.8	100.00%	310	76,235.5	100.00%	183	70,948.5	100.00%	101

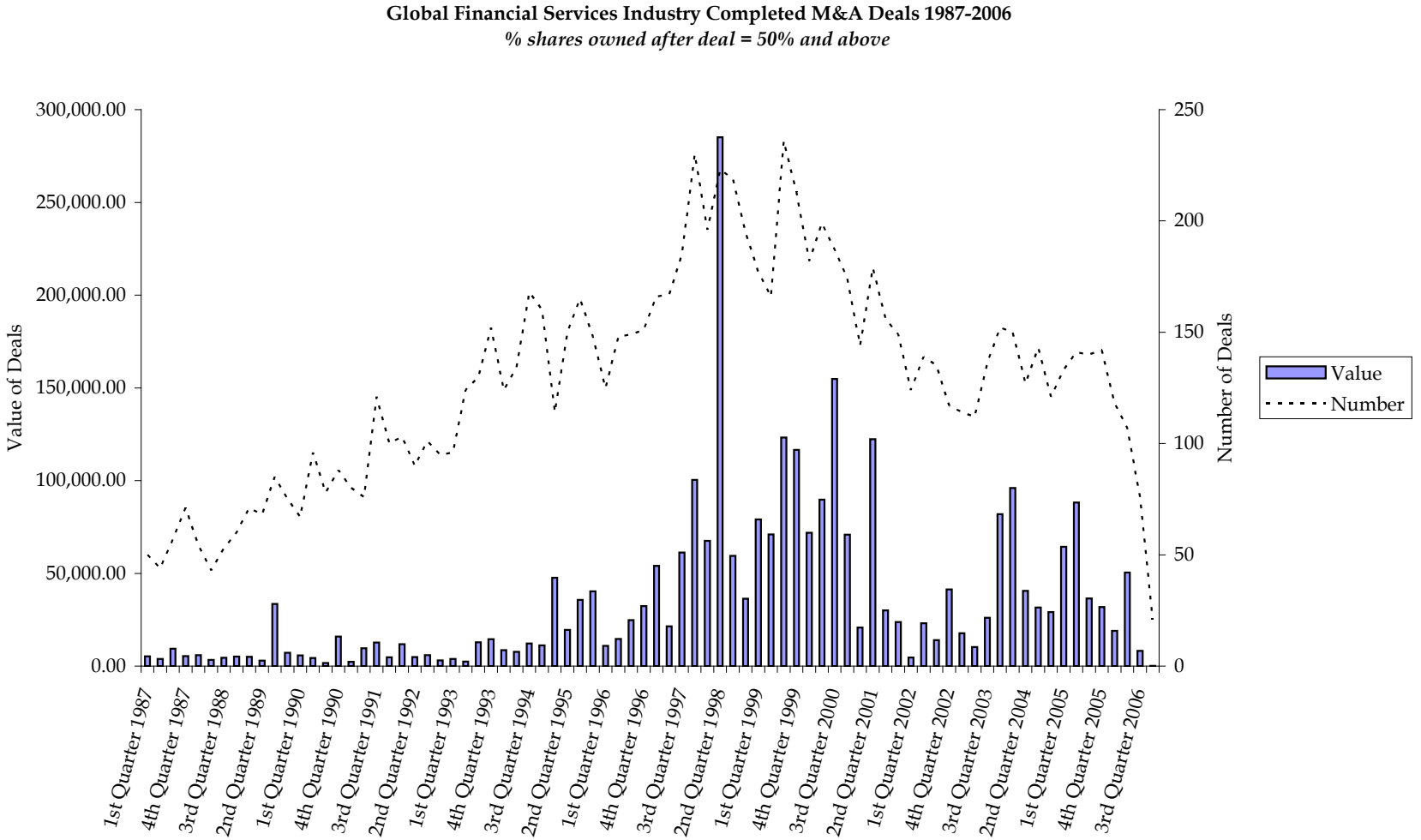
Period/Region	Africa/Middle East			Central Asia/Asia Pacific			Japan		
	Value $mil	% of Total	Number	Value $mil	% of Total	Number	Value $mil	% of Total	Number
1987 - 1991	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%	0
1992 - 1996	0.00	0.00%	0	69.40	2.55%	4	0.00	0.00%	0
1997 - 2001	0.00	0.00%	0	1,381.80	50.77%	4	0.00	0.00%	1
2002 - 2006	0.00	0.00%	0	1,270.40	46.68%	6	0.00	0.00%	1
Total	0.00	0.00%	0	2,721.60	100.00%	14	0.00	0.00%	2

Period/Region	South America		
	Value $mil	% of Total	Number
1987 - 1991	0.00	0.00%	0
1992 - 1996	0.00	0.00%	1
1997 - 2001	0.00	0.00%	1
2002 - 2006	0.00	0.00%	0
Total	0.00	0.00%	2

Search Criteria:
Completed deals (excluding divestitures) that took place between 1987 and 2006 where at least one company was publicly traded and the percentage of shares owned by the acquiring company after the transaction was above 50%. At least acquirer or target must be a public company.

Source: Thomson Financial

Figure A.1. Time Series of deals in the Financial Services Industry



APPENDIX B

Table B.1. Event Studies

Study	Methodology	AARs/CAARs	Sample Characteristics/Size		Sample Period	Event Window (Days)	% Pos. AAR	Objective / Notes
Amihud, DeLong and Saunders (2002)	Market model (three indices)	-1.00%	Mergers announcements between commercial banks and foreign banks	214	1985-1998	(-10,+1)	-	They study the effect of cross border bank merger announcements on the stock prices of bidders and relate them to the experienced changes in risk.
Beitel, Schiereck and Wahrenburg (2004)	Market Model (Combined Effect)	2.01%* 1.46%* 1.20%* 0.91%* 1.40%* 1.35%* 1.29%*	EU bank M&A announcements (including bank-insurance deals)	98 (11)	1985-2000	(-20,0) (-10,0) (-1,0) (0,0) (-1,+1) (-10,+10) (-20,+20)	-	They study the effect of European bank M&A announcements on the stock prices of involved parties. 11 bank-insurance announcements that are present in the sample are also examined, however not separately. Cross sectional analysis is also employed for determinants of CARs.
Carow (2001a)	Market model with IR[1] using MVRM[2] SUE[3] approach	+0.10% N. banks +0.27% St. banks +1.02%* Life Ins. -0.68% H. Ins. +0.19% P/C Ins.	U.S. banks and insurance companies	133 Nat. banks 117 state banks 30 Life Ins. 26 Health Ins. 67 P/C Ins.	1998	(0,0)	47 57 67 42 55	Objective is similar to Johnston and Madura (2000). The study also reports two-day (-1,0) CAARs and conducts cross sectional analysis for determinants of AARs.

Study	Methodology	AARs/CAARs	Sample Characteristics/Size		Sample Period	Event Window (Days)	% Pos. AAR	Objective / Notes
Carow (2001b)	Market model with IR using MVRM[2] SUE[3] approach	Annuities rulings -0.33% banks -2.39%* insurers Insurance rulings -0.25% banks -1.25% insurers	U.S. banks and insurance companies	89 banks 44 Insurers	1984-1996	(0,+1)	Annuities 46 32 Insurance 40 43	They study the effect on the stock prices of banks and insurance companies of 3 OCC and 3 Supreme Court rulings allowing banks to sell annuities and insurance products respectively. Results represent the summation of CAARs over the 2 groups of events. Cross sectional analysis is also conducted for firm specific determinants of AARs.
Carow and Heron (2002)	Market model with IR using MVRM[1] SUE[2] approach	+0.06% banks -6.33% f. banks -1.68% thrifts -5.72% fin. firms +4.05 Inv. banks +5.15%* Ins. comp.	U.S. Banks, foreign banks, thrifts, finance companies, investment banks and insurance companies	247 banks 10 f. banks 145 thrifts 32 fin. firms 33 Inv. banks 85 Ins. comp.	1998-1999	(0,+1)	52 20 44 25 67 68	They study the capital market reactions to 6 events leading to the passage of the Gramm-Leach-Bliley Act (FSMA 1999). CAARs are summed across six events. Cross sectional analysis is also conducted for firm specific determinants of AARs.
Chan, Kensinger, Keown and Martin (1997)	Market Model	+0.64%*	U.S. Strategic Alliances	345	1983-1992	(0,0)	55	They study the effects of strategic alliance announcements on the stock prices of the involved parties. Value weighted portfolios are constructed for 114 announcements that involve multiple partners.
Chen, Li, Moshirian and Tan (2007)	Market Model (Three index representation with two indices and interest rate)	Negative AARs and CAARs for domestic and cross border deals	European bancassurance deals with the exception of 2 targets outside Europe	42 deals	1983-2004	AARs days -10 to +10 CAARs (-10,2) (-1,+2) (0,+1) (0,+2) (0,+3)	-	They examine the wealth and risk effects of European bank-insurance deals. Cross section regressions are also employed for determinants of abnormal returns.

Study	Methodology	AARs/CAARs	Sample Characteristics/Size		Sample Period	Event Window (Days)	% Pos. AAR	Objective / Notes
Chiou and White (2005)	Market Model	Whole sample 2.93%* Domestic 1.93%* Domestic Small 3.13%* Domestic Large 1.23% Foreign 2.65%*	Japanese Strategic Alliances	109	1997-1999	(0,0) (-1,0)	Whole Sample 68 Domestic 39	They study the effect of strategic alliances on the stock prices of partnering financial institutions. Cross sectional analysis is also conducted for alliance and firm specific determinants of AARs.
Cowan, Howel and Power (2002)	Market model using MVRM[2] approach PCCM[4] tests	Annuities are Ins. +0.21%* Life Ins. -0.14% BHCs NY Banks can sell annuities. +0.16% Life Ins. -0.01% BHCs Banks underwrite annuities +0.03% Life Ins. +0.22%* BHCs Nat. Banks can sell annuities -0.09% Life Ins. -0.07% BHCs	U.S. Life Insurance and Bank Holding Companies	59 Life Ins 88 BHCs	1993-1995	(0,0)	-	They Study the effect on the stock prices of Life insurance firms and BHCs of four Court and Regulatory decisions regarding banks' rights to originate and market annuity products. 3-day CAARs also estimated and follow same pattern. Cross sectional analysis is also conducted for firm specific determinants of AARs.
Cybo-Ottone and Murgia (2000)	Market Model (Combined Effect)	+7.03%*	E.U. Bank-Insurance M&As	10	1988-1997	(-10,0)	60	They study the effect of M&As on the stock prices of involved parties. 2 deals were not completed. Negative bidder CAARs. Negative bidder AARs.
DeLong (2001)	Market Model (Combined Effect)	-0.91%*	U.S. Banks diversifying activity	168	1988-1995	(-10,1)	44.1	They study the effect of various types of mergers on the stock prices of the involved parties. Cluster analysis used to distinguish between focusing and diversifying mergers.

Study	Methodology	AARs/CAARs	Sample Characteristics/Size		Sample Period	Event Window (Days)	% Pos. AAR	Objective / Notes
Ekkayokkaya, Holmes and Paudral (2007)	Market Adjusted Model	0.31%* (Pre-EMU period)	EU bank M&A announcements (including bank-insurance deals)	963 (36)	1990-2004	(-1,+1)	-	They study the effect of European bank M&A announcements on the stock prices of bidders during the period of the EMU introduction. 36 bank-insurance announcements that are present in the sample are also examined with no significant excess return reported. Cross sectional analysis is also employed for determinants of CARs.
Fields, Fraser and Kolari (2007a)	Market Model (Comparison period approach)	Bidders 1.06% 0.42% 0.66%* 1.07%* Targets 7.25% -0.32% 3.44%* 2.98%* Combined 0.83% 0.38% 1.50% 1.89%	Merger announcements between US and EU banks and insurance companies	129	1997-2002	(-51,-2) (-1,-1) (0,0) (-1,0)	Bidders 61 59 57 59 Targets 66 45 55 59 Combined 68 64 68 68	They study the effect of bank-insurance merger announcements on the stock prices of bidders, targets as well as on the combined stock price of bidders and targets. Cross sectional analysis is also conducted for firm specific determinants of AARs.
Fields, Fraser and Kolari (2007b)	Market Model (Comparison period approach)	Full Sample 0.14% 0.28% 0.42% Bank Bidders 0.08% 0.29%* 0.37%* Insurance Bidders 0.38%* 0.25% 0.63%	Merger announcements between US and EU banks and insurance companies	**129** 105 bank bidders 24 insurance bidders	1997-2002	(-1,-1) (0,0) (-1,0)	Full Sample 63 65 66 Bank Bidders 48 55 56 Insurance Bidders 15 10 10	They study the effect of bank-insurance merger announcements on the stock prices of bank bidders, insurance bidders as well as on the full sample. Cross sectional analysis is also conducted for corporate governance specific determinants of AARs.

Study	Methodology	AARs/CAARs	Sample Characteristics/Size		Sample Period	Event Window (Days)	% Pos. AAR	Objective / Notes
Hendershott, Lee and Tompkins (2002)	Market Model using MVRM[2] SUE[3] approach	+0.24% c. banks +2.21% Inv. banks +1.33%* Ins. comp	U.S. commercial banks, Investment banks and insurance companies	297 banks 36 Inv. banks 139 Ins. comp.	1999	(-1,0)	-	Objective similar to Carow and Heron (2002) only they examine 7 events leading to FSMA 1999. Only one event (compromise agreement between White House and congress to pass the bill) produced a significant reaction (reported left). Cross sectional analysis is also conducted for firm specific determinants of AARs.
Johnston and Madura (2000)	Market model with IR[1] using MVRM[2] SUE[3] approach	+2.03%* Banks +1.02%* Ins. +3.66%* Secur.	U.S. banks, insurance companies and securities firms	12 large banks 26 insurers 24 securities	1998	(0,0)	-	They study the effect of the Citicorp-Travelers merger on the stock prices of peer institutions.
Lepetit, Patry and Rous (2004)	Bivariate GARCH Model	Positive CAAR for target banks and bidders banks that diversify activity or focus geography.	European bank M&As focusing or diversifying activity and geography	180 deals	1991-2001	(-7,+7) (-15,+15)	-	They examine the stock market reactions upon announcement of bank M&As. Sample is split into deals focusing or diversifying activity and geography. Probit analysis is also employed to examine the probability of excess returns.
Martin and Keown (1981)	Market Model	Slight graphical evidence of rising CAARs around announcement(s)	Announcements of formation of BHCs	25	1968-1974	(-35,+35) monthly	-	They examine the effect of the formation of Bank Holding companies on the stock returns of these institutions. They also examine shifts in betas before and after the announcements for each BHC individually. (see risk-return table)

Study	Methodology	AARs/CAARs	Sample Characteristics/Size		Sample Period	Event Window (Days)	% Pos. AAR	Objective / Notes
Martin and Keown (1987)	Market Model inflated with return on index of BHCs	No significant changes in means of residuals but significant changes in variance in all cases examined.	Announcements of formation of BHCs	23	1968-1974	(-155,+156) weekly	-	They examine the effect of the formation of Bank Holding companies on the stock returns of these institutions. T-tests and F-tests on means and variances of residual returns before and after announcement are employed. Sample is also split into BHCs formed before and after the 1970 Bank Holding Company act amendment with similar tests employed. They also examine shifts in betas before and after the announcements for each BHC individually. (see risk-return table)
Neale and Peterson (2005)	Market model portfolio approach allowing for market risk changes.	+2.50%* Life Ins. +2.10% A&H Ins. +2.32%* P/C Ins. +1.50% Other Ins.	U.S. Life, Accident & Health, Property & Casualty and Other Insurance companies	33 Life Ins. 13 A&H Ins. 40 P/C Ins. 51 Other Ins.	1997-2000	(-1,+1)	-	They examine the wealth and market risk effects of 10 events leading to the FSMA 1999 on each of the four sectors of the insurance industry. Results on the left represent abnormal returns associated with the effective date of FSMA 1999.

* Following AARs represents significance at 5% or better

[1] Interest Rate

[2] Multivariate Regression Model using Dummy Variables

[3] Seemingly Unrelated Equations

[4] Portfolio Constant Correlation Model

Table B.2. Cross Section Results

Study	Findings	Methodology	Sample Characteristics/Size		Sample Period
Carow (2001a)	Around the announcement of Citicorp Travelers merger, large banks and life insurance companies have significantly higher abnormal returns than small banks, national banks and P/C insurance companies.	Cross sectional regression of SUR abnormal returns on various indicator and accounting variables	National banks State banks Life Insurance Health insurance P/C Insurance	373	1998
Carow (2001b)	Insurance brokerage firms have positive and significant abnormal returns upon rulings that allow banks to sell annuities and insurance, whereas insurance agencies and life insurance companies experience negative and significant abnormal returns	Cross sectional regression of SUR abnormal returns on various indicator variables	Banks Insurance	133	1984-1996
Carow and Heron (1998)	Negative relation between Interstate presence of BHC and excess returns. Also negative relation between BHC profitability/capitalisation ratios and abnormal returns experienced upon the passage of IBBEA.	Cross sectional regression of CARs from passage of IBBEA on legislative and accounting variables	BHCs	Model 1 - 180 Models 2 to 4 - 170	1994
Carow and Heron (2002)	Large investment banks and large insurance companies benefited from FSMA, whereas thrifts, finance companies and foreign banks lost value	Cross sectional regression of CARs from passage of FSMA on firm characteristics and size variables	Banks F. banks Thrifts Fin. firms Inv. banks Ins. comp.	Not reported for cross section analysis. See event studies table	1998-1999
Carow and Lee (1997)	Banks located in passage states have significantly higher CARs than reciprocal banks. Negative relation between size and CARs, while positive relation with profitability and CARs. Finally, banks in states with faster growth and lower bank concentrations have higher returns.	Cross sectional regression of CARs from state passage of legislation reducing interstate banking restrictions on legislative factors, bank characteristics and economic factors	Banks	All Banks (3817, 2462) Reciprocal State Banks (3612, 2327) Passage State Banks (205, 135)	1982-1993
Cybo-Ottone and Murgia (2000)	No relation between CARs and target size. Domestic deals are better off than small deals and deals between commercial banks. Some evidence for country effects.	Cross sectional regression of value weighted CARs on target size, dummy variables related to deal characteristics and country dummies	EU Bank mergers	46 deals for size and deal characteristics and then 54 and 72 for country dummies for bidders and targets respectively	1988-1997
Fields, Fraser and Kolari (2007a)	Positive and significant relation between possible synergies and CARs. Cross-border deals are found to be associated with positive abnormal returns.	Cross sectional regression of ARs on accounting, risk and deal characteristics variables. Cross border dummy is also employed	Bank-Insurance deals	36 for models 1, 2 and 4 32 for model 3	1997-2002

Study	Findings	Methodology	Sample Characteristics/Size		Sample Period
Fields, Fraser and Kolari (2007b)	Positive and significant relation between bidder profitability and CARs. Cross-border deals are found to be associated with positive abnormal returns. Positive relation between CEO ownership levels and CARs	Cross sectional regression of ARs on accounting, risk and deal characteristics variables. Extension of 2007a paper by addition of cross section analysis for corporate governance variables	Bank-Insurance deals	116 Drops to 66 for cross sections with corporate governance variables	1997-2002
Johnston and Madura (2000)	Significant relation between size and ARs for commercial banks and brokerage firms	Cross sectional regression of ARs on size	Banks Insurance Brokerage firms	Not reported for cross section analysis. See event studies table	1998
Chan, Kensinger, Keown and Martin (1997)	Negative relation between size and ARs. Horizontal alliances are better of than non-horizontal ones. Horizontal alliances that entail complementarities in knowledge and skills are positively related to ARs	Cross sectional regression of ARs on accounting variables and deal characteristics	Strategic Alliances	Not reported for cross section analysis using accounting variables. See event studies table. 30 and 17 for horizontal alliances and 90 and 79 for non-horizontal	1983-1992
Hendershott, Lee and Tompkins (2002)	Positive relation between size and ARs for all firms. Profitability is positively related to ARs only for commercial banks	Cross sectional regression of ARs from passage of FSMA on accounting variables	Commercial Banks Investment Banks Insurance	297 36 139	1999
Amihud, DeLong and Saunders (2002)	Insignificant relation between systematic risk and CARs. Weak positive relation between total risk (relative to home bank index) and CARs	Cross sectional regression of CARs experienced upon merger announcements on changes in risk	Mergers announcements between commercial banks and foreign banks	214	1985-1998
Chen, Li, Moshirian and Tan (2007)	Positive relation between relative deal size and CARs. Also positive relation between change in risk ($\Delta\beta$) and CARs.	Cross sectional regression of CARs on accounting, risk variables as well as cross border dummy	Bank-insurance deals	Not reported for cross section analysis. See event studies table	1983-2004
Chiou and White (2005)	Negative relation between intra-group alliances and CARs. Both domestic and cross-country alliances have a positive relation with CARs	Cross sectional regression of CARs on dummy variables of strategic alliance characteristics	Strategic Alliances	109	1997-1999
Kim, Mayers and Smith (1996)	Insurers that use exclusive agency systems are usually larger with lower costs, have more geographically concentrated operations, advertise more and sell less personal line insurance than insurers using independent agency systems. The most important variables determining the choice of distribution system is the lines of insurance operated.	Logit Regression of exclusive vs independent distribution systems on ownership structure characteristics	Property-liability insurers	1480	1981

Table B.3. Performance Related Studies

Study	Objective	Findings	Methodology	Sample Characteristics/Size		Sample Period	Notes
Berger, Humphrey and Pulley (1996)	They examine the synergies arising from the joint consumption of deposit and loan services	No revenue economies of scope in banking, as both their fixed and complementary components are insignificantly different from zero over 1978-1990.	Composite translog cost function	U.S. Banks	683 ('78-'84) 626 ('90)	1978-1984 and 1990	The model used associates a quadratic composition for multiple outputs with a log-quadratic composition for input prices. It also allows for the disintegration of scope economies into their fixed and complementary components.
Chang and Lynge (1994)	They examine the existence of multiproduct cost economies, in particular scale and scope economies.	Constant overall and product specific returns to scale for average Savings Banks. Scope economies are present at overall level but diseconomies arise at product specific level.	Generalized translog cost function	U.S. Savings Banks (all)	417	1986-1988	Product specific scale and scope economies are investigated with respect to investments in real estate ventures.
Hunter, Timme and Yang (1990)	They examine the subadditivity of costs in US banks in the context of hypothetical mergers.	The costs functions of large multiproduct banks are not subadditive, implying no cost complementarities in multi-product production among them.	Hypothetical Mergers / Multi-product translog cost function using minflex Laurent functional form	U.S. Largest Banks	311	1986	Two different models are used for bank deposits, one treats them as outputs and second as inputs.
Lang and Welzel (1996)	They measure economies of scale and scope, cost efficiency and rate of technical progress.	Moderate economies of scale for all size classes. Some evidence for economies of scope for small size classes. Cost reductions are mostly due to technical progress. Sample banks are found to be cost inefficient.	Multi-product translog cost function	German Cooperative Banks	757	1989-1992	They employ a non-homothetic functional form. Scale economies are also measured using non-contant output.

Study	Objective	Findings	Methodology	Sample Characteristics/Size		Sample Period	Notes
Vander Vennet (2002)	He compares cost and profit efficiency measures across universal banks, financial conglomerates and specialized peers.	Specialised institutions exhibit equal cost efficiency with financial conglomerates when non-traditional activities are not taken into consideration but latter are more cost efficient when all activities are accounted for. While specialized banks have large unexploited scale and scope economies, financial conglomerates only have opportunities for scope economies and exhibit no scale economies.	Cost function using both standard translog and Fourier-Flexible specification for functional form	E.U. Banks	2,375	1995-1996	Author suggests that further de-specialisation could lead to a more efficient banking system.
Casu and Girardone (2004)	They examine the cost and profit efficiency and changes in productivity of financial conglomerates. They also employ cross sectional analysis for determinants of cost and profit efficiency.	Mixed results across two models for cost efficiency with 1st suggesting a constant improvement over the sample period and the 2nd exhibiting an irregular cost efficiency trend over the sample period. Profit efficiency estimates are consistent across both methodologies and exhibit a persistent upward trend over the sample time period. Cross section regressions reveal that cost efficient conglomerates have higher capital ratios, superior growth rates and lower degree of problem loans. There is also a significant negative relationship between cost efficiency and ROA. Positive relation between the capital ratio, non performing loans and profit efficiency but negative relation beween growth rates and profit efficiency.	1. Parametric Stochastic Frontier Approach (SFA) 2. Non-parametric Data Envelopment Analysis (DEA) 3. Malquimist Total Factor Productivity Index (TFP).* 4. Cross section analysis	Italian Financial Conglomerates	168 groups**	1996-1999	The authors argue that the increase in the profitability of the conglomerates is due to the fact that revenues have increased ahead of costs. Profit efficient groups are those with high risk-return profiles.

Study	Objective	Findings	Methodology	Sample Characteristics/Size	Sample Period	Notes
Wheelock and Wilson (2001)	They analyse estimates of scale and product mix economies.	Banks could achieve potential economies by expanding the size of their output and adjusting their output mix toward those of banks with at least $300–$500 million of assets. Estimates of ray-scale and expansion path suggest that the size at which scale economies are exhausted has increased between the mid-1980s and mid-1990s.	1. Parametric translog model 2. Fourier flexible functional form 3. Fully nonparametric kernel regression 4. Local polynomial smoothing (LPS)	All U.S. Commercial Banks (with available data) -	1985 1989 1994	-

* 1 and 2 for Cost and profit efficiency estimates and 3 for productivity change.

** The observations are distributed across the sample period in the following manner: 1996 - 36 groups, 1997 - 40 groups, 1998 - 44 groups and 1999 - 48 groups. On average there are 42 groups per year.

Table B.4. Risk-Return Studies

Study	Objective	Findings	Methodology	Sample Characteristics/Size		Sample Period	Notes
Allen and Jagtiani (2000)	They analyse the impact of securities and insurance activities on bank total and systematic risk as well as on bank risk premiums.	Nonbank activities reduce overall risk but increase systematic market risk. Both securities and insurance activities have no significant effect on market risk premiums of universal banks. Moreover, while the interest rate risk premiums seem to be lowered by securities activities, it is not affected by insurance activities	Synthetic Universal Banks - Portfolio approach / multiple regression	BHCs Securities Insurance	9 companies from each industry. 729 pairs generated	1986-1994	Both accounting and stock market data are used.
Baele, De Jonghe and Vander Vennet (2007)	They examine the relationship between bank franchise value/risk and the degree of asset and functional diversification	Strong positive relation between Tobin's Q and degree of functional diversification. Non-interest revenue share is positively associated with systematic risk, but negatively related to idiosyncratic and total risk. The latter relationship is non-linear with a shift in its direction occurring when non-interest revenue share exceeds 22% and 36% for total and idiosyncratic risk, respectively.	Regressions of bank Tobin's Q, betas, total and idiosyncratic volatility on measures of asset and revenue diversification	Banks from 17 European countries	255	1989-2004	-
Boyd and Graham (1986)	They examine the relationship between risk and BHC involvement in non-bank activities	No significant relationship between the profitability measure and non-bank activity or between any of the two risk measures and non-bank activity. Negative correlation between leverage and profitability and a strong positive relation between leverage, size and risk.	Multiple Regression analysis (OLS). Risk, profitability are dependent variables	U.S. Large Bank Holding Companies	64	1971-1983	They use accounting data. Risk captured by variability of returns and Z-scores. They also test two subperiods (1971-1977 and 1978-1983) given that regulation of BHC was considerably tightened near the end of the sample period. They find a strong positive correlation between nonbank share and risk only in the first subperiod.

Study	Objective	Findings	Methodology	Sample Characteristics/Size		Sample Period	Notes
Boyd and Graham (1988)	They analyse the impact of a hypothetical expansion of BHCs into securities, life insurance, P/C insurance, real estate development and other real estate companies on BHC risk.	Combinations between BHCs and securities firms, real estate developers and P/C insurance increase the volatility of returns and the risk of failure. On the other hand, evidence suggests that expansion of BHCs into life insurance reduces both the volatility of returns and risk of failure, thus rendering the latter industry an appealing partner for BHCs.	Merger simulations / comparison with unmerged companies (benchmark)	U.S. BHCs Life insurance P/C Insurance Insur. brokers/agents Securities firms Real estate dev/mnt Other real estate	146 30 15 5 11 31 11	1971-1984	Accounting and market data are used. Merger simulations are conducted by randomly selecting BHC-nonbank pairs while 100 hypothetical firms are generated for each of the 6 possible combinations. Drawback is that BHCs combine only with one firm at a time.
Boyd, Graham and Hewitt (1993)	They analyse the impact of a hypothetical expansion of BHCs into securities, life insurance, P/C insurance, real estate development and other real estate companies on BHC risk.	Mergers between BHCs and life or non-life insurance firms can be risk reducing when the appropriate asset portfolio weight combinations are chosen, whereas mergers with either securities or real estate companies are likely to increase BHC risk.	Merger simulations / comparison with unmerged companies (benchmark)	U.S. BHCs Life insurance P/C Insurance Insur. brokers/agents Securities firms Real estate dev/mnt Other real estate	141 30 16 20 27 69 67	1971-1987	Methodology employed is relatively similar to Boyd and Graham (1988) in that random merger simulations between BHC and non-bank financial firms are generated. However in contrast to the previous work this study accounts for various different portfolio combinations for each bank-nonbank pair.
Brewer (1989)	He examines the relation between BHC risk and diversification into non-banking.	No evidence of high BHC risk associated to non-bank activity. In addtion there is a strong negative relation between risk and non-bank activity for the high risk BHCs.	Multiple Regression analysis (OLS and GLS). Risk is the dependent variable	U.S. Bank Holding Companies	109	1978-1986	Similar to Boyd and Graham (1986) only he uses both accounting and stock market data.
Brewer, Fortier and Pavel (1988)	They examine the relation between BHC risk and non-bank activities	Negative relation between proportion of nonbank activity and BHC risk. Although individual nonbank activitities are riskier than banking the correlations suggest possible diversification benefits. Finally, merger simulations show that the risk of BHC increases substantially only when the nonbank activity accounts for more than 25% of the resulting company	a. OLS regressions of variance of stock returns and ROA on proportion of assets devoted to nonbank activity. b. Variance analysis and hypothetical mergers	a. BHCs b. Nonbanks and banks	a. 40 b. 325 and 170	a. 1979-1983 b. 1980, 1982 and 1996	While the correlation of returns between health insurance and banking is low, suggesting diversification opportunities, the correlation between P&C insurance and banking returns is high.The paper also provides an excellent review of previous risk-return studies.

Study	Objective	Findings	Methodology	Sample Characteristics/Size		Sample Period	Notes
Estrella (2001)	He examines the potential diversification gains from combinations of banks with companies from various other sectors.	Banking institutions and insurance companies can experience diversification benefits by converging.	Option pricing/arbitrage pricing approach	BHCs Life Insurance Fire, marine and Casualty Security brokers/dealers non-financial	10 largers firms in each of the five industries and 10 largest and smallest BHCs	1989-1998	Both accounting and stock market data are used. They also provide risk-return statistics at aggregate industry level.
Genetay and Molyneux (1998)	They analyse the impact of an expansion of UK banks into mutual and proprietary life insurance on bank risk.	Mixed evidence on risk, with significantly lower probabilities of failure but insignificant changes in return on assets volatility for bancassurance combinations.	Merger simulations	U.K. Banks Building societies Life Insurance	TBC	1988-1992	-
Heggestad (1975)	He examines the risk effects of combining banks with non-banks.	Many non-bank activities are safer than banking and there are potential diversification benefits in some non-banking operations such as insurance agents and brokers, real estate agents, brokers and managers and combinations of real estate, insurance and loan and law offices.	Variance-covariance and correlation analysis	U.S. banks, real estate agents, brokers and managers, insurance agents and brokers, combinations of real estate, insurance, loan and law offices, lessors of railroad property and business credit agencies.	Industry Level analysis	1953-1967	As author points out, considerable care must be exercised in reflecting aggregate industry data and conclusions drawn from their analysis to the individual firm level.
Kwast (1989)	He examines the potential for risk diversification through bank securities activities.	Limited potential for risk diversification depending on the sub-period examined.	Portfolio theory Risk-return frontier analysis	a. Commercial bank trading account assets b. Aggregate trading account assets	a. 7410 b. 40	1976-1985 (quarterly)	Full sample is sorted in three ways: 1. Three periods (policy regimes) 2. Three groups depending on relative degree of trading activity 3. Four size groups (assets) Data are also aggregated annualy for bias comparison purposes. Results show that the bias from industry aggregation is higher than the bias from time aggregation.

Study	Objective	Findings	Methodology	Sample Characteristics/Size			Sample Period	Notes
					79-'86	'87-'97		
Laderman (1999)	They analyse the impact of a hypothetical expansion of BHCs into various non bank activities on BHC risk.	Life/ insurance underwriting, property and casualty insurance underwriting or securities underwriting, reduce the probability of bankruptcy of the BHC.	Merger simulations	All BHCs	200	422	1979-1986 1987-1997	Methodology similar to Boyd and Graham (1988) only analyses all possible combinations of BHC-nonbanks.
				Large BHCs	151	126		
				Life Insurance	29	50		
				P/C Insurance	33	103		
				Ins. Agents/Brokers	17	44		
				Real estate devel.	32	26		
				Other real estate	100	95		
				Sec. broker/dealers	31	66		
				Investment advice	7	24		
				All securities	38	90		
Laeven and Levine (2007)	They examine the effect of activity diversification on bank valuation	Diversification of bank based financial services firms is value destroying, since the market values of banks engaged in multiple activities are lower than the values those banks would have, if broken up into specialized firms. Also negative relation between diversity measures and excess and Q values.	Analysis of excess value and Tobin's Q ratio of diversified banks. Regressions of excess value and Q estimates on diversification proxies and other control variables	Banks from 43 countries	836		1998-2002	Excess value is measured as the difference between a bank's actual q and its activity-adjusted q, whereas the latter represents the weighted average q of pure commercial banks and pure investment banks.
Lepetit, Nys, Rous and Tarazi (2008)	They examine the relationship between bank income diversification and both accounting- and market-based measures of bank risk	Significant relationship between degree of income diversification and both accounting- and market-based measures of risk. Relationship is stronger for smaller banks. Risk is more positively correlated with fee-based activities than with trading activities.	OLS regressions of market- and accounting-based measures of risk on net non-interest share, net commission income share, and net trading income share plus other control variables	European Banks from 14 countries	734		1996-2002	-
Lown, Osler, Strahan and Sufi (2000)	They analyse the effects of a hypothetical expansion of BHCs into various non bank activities on BHC risk.	Mergers between bank holding companies and either securities firms or property and casualty firms would likely modestly raise BHC risk. However, mergers between BHCs and life insurance companies lower the risk of both firms due to diversification benefits.	Merger simulations	BHCs Insurance Securities	Largest 10 10 10		1984-1998	Accounting data are used.

Study	Objective	Findings	Methodology	Sample Characteristics/Size		Sample Period	Notes
Martin and Keown (1981)	They examine shifts in systematic risk before and after announcements of BHC formation	No evidence of significant changes in BHCs systematic risk prior to and following the announcement of their formation.	Multiple regression	Bank Holding Companies	25	1968-1974	They use dummy variables to capture shifts in betas before and after the announcements. They also examine the effect of the announcements on the returns of BHCs (see event studies table)
Martin and Keown (1987)	They examine shifts in systematic risk before and after announcements of BHC formation	No evidence that the passage of the 1970 Bank Holding Company Act amendment altered the systematic risk of BHCs.	Multiple regression	Bank Holding Companies	23	1968-1974	They use dummy variables to capture shifts in betas before and after the announcements and the 1970 amendment, controlling at the same time for industry wide effects. Also conduct event study analysis (see event studies table)
Mercieca, Schaek and Wolfe (2007)	They examine the impact of diversification on the performance of small European banks	Negative relation between non-interest income and both performance and risk. Small European banks do not benefit from diversification and should rather focus on core competencies.	OLS regressions of profitability and revenue volatility measures on HHI measures of diversification	Small European Banks	755	1997-2003	The analysis also extends to the sensitivity of the models with respect to regulatory environment in which banks operated.
Nurullah and Staikouras (2008)	They examine the risk-return effects of European banks' diversification into life and non-life insurance underwriting, as well as into insurance broking businesses	At the aggregate level life and non-life insurance underwriting are more risky than banking. Insurance broking has higher returns and does not affect crediworthiness. Synthetic structure analysis shows that general and life insurance significantly increase volatility and the probability of bankruptcy and that best candidate for bank expansion is insurance brokerage.	Risk-return analysis / actual bank-insurance pairs	E.U. banks life insurance non-life insurance insurance brokers	 45 40 12 11	1990-1999	Analysis also provided for the aggregate industry level.

Study	Objective	Findings	Methodology	Sample Characteristics/Size		Sample Period	Notes
Schmid and Walter (2009)	They examine whether functional diversification is creating or destroying the value of financial institutions	Substantial and persistent conglomerate discount in financial firms. It is diversification that causes the discount and not that troubled firms choose to diversify in other areas. Interestingly, when combinations between banking and insurance or banking and investment banking are considered, they are found to offer a significant valuation premium.	Comparison of excess values and measures of diversification of diversified firms versus those of focused firms. Regression of excess value measures on different diversification proxies and other control variables. Extra regressions with dummy variables for various activity combinations	U.S. financial firms	664	1985-2004	Excess value is calculated as the log of the ratio of a firm's value to its imputed value. The imputed value of the firm is calculated as the sum of the imputed segment values, whereas, the imputed value for each segment is calculated by multiplying the segment's sales (assets) by the median ratio of the market value to sales (assets) for single segment firms in the same industry.
Stiroh (2004)	He examines the relation between non-interest income and volatility of bank revenue and profits both at the aggregate and bank level	Industry level analysis shows that while the volatility of bank revenue has dropped overtime, this decline was due to the reduction in the volatility of net-interest income. On the other hand, the volatility of non-interest income is found to have increased during the same period, together with the correlation between net and non-interest income. Latter correlation is also evident at bank level analysis. Negative relation between non-interest income and profits per unit of risk.	Analysis of fluctuation in non-interest income and net interest income over time, examination of volatility of net operating revenue growth. Correlation analysis between net interest income and non-interest income across time and sample of banks. Also OLS regressions of bank net income growth and ROE on non-interest share proxy and other variables	a. Aggregate U.S. banking industry data b. Bank-level data	b. All U.S. commercial banks	a. 1984:Q1 to 2001:Q3 b. 1978-2000	The author suggests that banks' increasing focus on cross-selling might expose different lines of their business to the same shocks.

Study	Objective	Findings	Methodology	Sample Characteristics/Size		Sample Period	Notes
Stiroh (2006)	He examines the relationship between non-interest income and equity market measures of BHC return and risk	Insignificant relation between bank mean return and non-interest activities. Positive correlation between non-interest income share and total, market and idiosyncratic risk. Relationship between non-interest share and total and idiosyncratic risk is non-linear. In effect, total risk can be minimized when non-interest share is between 18% and 27%, while idiosyncratic risk is minimized when the share remains under 16%.	Pooled cross-section OLS regressions of stock returns, total risk, idiosyncratic risk and bank betas on non-interest share proxy, size and equity to assets ratio	U.S. Bank Holding Companies	3198 bank year observations from 635 distinct banks	1997-2004	-
Stiroh and Rumble (2006)	They examine impact of diversification on the performance of FHCs	Increased risk adjusted performance due to diversification benefits across FHCs is offset by increased exposure to non-interest activities. Within FHCs, increasing diversification does not bring improvements in risk adjusted performance. Negative ralation between non-interest income and risk adjusted performance.	Cross section and panel regressions	Financial Holding Companies	1816	1997-2002 (quarterly)	They also examine the impact of diversification on regular performance measures such as ROE, ROA and their respective standard deviations. They only find a significant relation when standard deviations are used as dependent variables. This paper has two possible issues/biases. First, they use DIV and SHnon in regression which have a non-linear relation, Second similar issues arise through use of non-interest income and net income.
Wall (1987)	He compares the riskiness of BHC affiliates and the possible diversification benefits	Mixed evidence regarding the effects of nonbank activities on BHC risk. Nonbank activities can either reduce or increase risk of BHCs depending upon the risk profile of existing bank affiliates.	ROE mean, standard deviation and correlation analysis as well probability of failure analysis	Bank Holding Companies	267	1976-1984	-

Table B.5. Qualitative Studies

Study	Objectives	Conclusions/Implications
Allen and Santomero (2001)	The paper explores the changing role of financial intermediaries across time and across countries such as the U.S., U.K., France, Germany and Japan.	The role of financial intermediaries across time and countries varies with the type of market and the type of assets held by households in each country. The surge of innovation in financial markets in the last 25 years has radically changed the type of assets held by households, with those in market based economies (U.S. and U.K.) shifting towards riskier assets. This has transformed the way banks manage risk and forced them to move away from traditional banking activities and move towards fee generating activities.
Artikis, Mutenga and Staikouras (2008)	The article explores the bancassurance phenomenon from three perspectives: First, it reviews the main empirical findings on the bancassurance models. Second, it analyses the current market practices across the world and third provides a thorough discussion of the available products and modes of entry	There is no clear answer in the literature with regards to whether financial conglomerates and bancassurance will succeed. The differences in the penetration of bancassurance across the globe further adds to the debate. There is no winner amongst the available modes of entry, the level of integration and structure depends on market characteristics.
Benoist (2002)	The article adeptly analyses the benefits, risks and vulnerabilities associated with the bancassurance model. It also provides a statistical overview of the penetration of bancassurance across selected nations across the world.	Bancassurance presents a major opportunity for financial institutions if the inherent risks are taken into careful consideration and minimized. Successful bancassurers will be those able to 1) tailor the model to the context, 2) focus on quality, innovation, technology and low costs and 3) strong customer relationships.
Benston (1994)	The article provides an excellent discussion on the possible implications of a universal banking system in the US. These include effects on financial stability, economic development, other financial institutions, concentration of political and economic power, consumer choice, and conflicts of interest.	Universal banking should benefit the financial system as a whole, without introducing any considerable problems to the economy and affecting financial stability.
Bergendahl (1995)	The article in general analyses the dynamics behind the profitability of bancassurance. It lays down several assumptions on how to render bancassurance profitable, especially through cost reduction. It builds a model that estimates this profitability for KredietBank and Deutsche Bank.	Five key factors affecting bancassurance profitability 1. Number of branches (positively correlated with investment costs) 2. Number of insurance specialists per branch (as above) 3. Number of customers (positively correlated with benefits) 4. Cross-selling ratio (same) 5. Degree of learning (negatively correlated with costs)
Broome and Markham (2000)	The paper provides a historical overview of the development of the insurance industry and its regulatory surroundings in the US. The benefits and costs of bank involvement into the insurance business are also adeptly analysed together with a discussion of the regulatory firewalls that slowed down the phenomenon in the US and the various ways that the latter were circumvented. The paper concludes with an analysis of the aftermath of the Financial Services Modernization Act of 1999 (FSMA, 1999).	Despite the regulatory restrictions banks and insurers have always found ways to combine their operations. On the regulatory side, the current functional approach is considered non-vital and changes must be made to replace the duplicative regulatory structure with a new one, adept to regulate modern financial services.
Dorval (2002)	The paper discusses the restrictions imposed on Canadian banks with regards to the promotion and sale of insurance products.	The Federal regulatory system was behind the times in 2002 and should have been changed in order to give more freedom to banks with respect to the sale of insurance products. Note by Panagiotis Dontis-Charitos: In reality even nowadays the Bank Act prohibits Canadian banks from selling insurance through their branches. Despite this, an increasing number of banks including the Royal Bank of Canada and Bank of Montreal are circumventing restrictions by opening insurance outlets of their subsidiaries adjacent to their bank branches, or by providing insurance online.

Study	Objectives	Conclusions/Implications
Falautano and Marsiglia (2003)	This paper explores the various ways in which financial institutions can enter bancassurance. The current trends and future prospects of the phenomenon are also discussed and its presence in key European markets analysed.	Bancassurance is here to stay and the transformation of the financial institutions in order to adapt to it will draw a line between winners and losers. Winners will be those institutions that base their strategies on customers, the only factor that can promise value creation.
Felgran (1985)	The paper examines the rationale behind the entry of banks into the insurance business, the legal firewalls faced by banks and the various means used by them in order to circumvent these restrictions.	Insurance brokerage is attractive for banks since it is complementary to banking products, requires low investment and carries low risk as it generates fee income. Both banks and insurers can lower their costs and increase efficiency via the cross-selling of their products. Insurance underwriting not attractive to banks because of high risk/low return profile and is capital intensive. Also few linkages between underwriting and banking services.
Flur, Huston and Lowie (2001)	The article explores the main drivers behind the bancassurance trend and discusses the potential benefits for banks, insurers and clients. Three different models of entrance to bancassurance are also adeptly analysed.	-
Herring and Santomero (1990)	This article provides a detailed analysis of the public policy issues pertinent to the creation of financial conglomerates. It also explores the different corporate structures available to financial conglomerates in an effort to identify the most appropriate one.	Although financial conglomerates may not dominate specialised firms they are better positioned as their diversity allows them to adapt easily to changing environments. In allowing financial conglomerates to be formed, regulators must pay special attention to issues such as monopoly power, excessive economic and political power, conflicts of interest, increased systemic risk, cross subsidies, and finally the possibility that conglomerates might become difficult to supervise and regulate.
John, John and Saunders (1994)	The paper explores the impact of universal banking on bank risk under two distinct scenarios. Under the first scenario the bank does not control the firm's investment decisions whereas under the second, the bank has control over investment decisions.	Under the first scenario, increases in bank ownership of firms results in increased investment efficiency and reduced risk of the bank's portfolio. In the second scenario, while investment efficiency is still an increasing function of the equity held by the bank, the portfolio risk of the bank increases.
Johnston (1922)	The paper provides an extensive analysis of how banks in the state of Massachusetts in 1907 could establish insurance departments and offer a combination of banking and insurance products. More integrated products such as hybrid savings deposits and life insurance that appeared in the market are also adeptly analysed together with the reasons of their condemnation by the legal authorities.	The collaboration of banks and insurers extends back to the beginning of the 20th century. Combinations where bank and insurance divisions where kept financially separate were successful whereas more integrated approaches were condemned, mainly due to the risks involved.
Kalotychou and Staikouras (2007)	The paper explores the evolution of the bancassurance phenomenon and its characteristics and current practices in the Greek market.	Despite de jure regulatory limits on the interface of financial institutions bancassurance existed in Greece since the early 1980s in a de facto mode, where state owned banks operated their own insurance subsidiaries with the latter structure still being the dominant bancassurance model. Factors such as demographics, economic and regulatory environment are identified as the drivers of the phenomenon whereas the hunt for superior performance is identified as the underlying motive. Finally the authors suggest that operational factors such as the product range, fee levels and the use of technology are crucial to the success of the phenomenon.
Kane (1981)	The paper examines the dynamics that lie behind the interaction between regulation, regulatory avoidance (circumvention of the rules), re-regulation and deregulation within the U.S. banking industry	There is a cyclical pattern in the interaction between regulation, circumvention and re-regulation and/or deregulation. As a market becomes increasingly competitive, regulation tends to become stricter and regulatees are more willing to innovate in terms of finding loopholes, especially because regulation in a market imposes opportunity costs on banks. Re-regulation is not always the best practice after a series of cyclical interactions, since it can be a very complex procedure that imposes social costs. This is when deregulation becomes more and more attractive. The author points out that the market should be deregulated, in order to enable banks to exploit economies of scale, scope and become more efficient.

Study	Objectives	Conclusions/Implications
Kane (1988)	*See Kane (1981)*	A dialectical approach is used to analyse the pattern of regulation, avoidance and re-regulation. Dialectical (regulatory) outcomes are governed by the push and pull of the opposing forces of thesis (regulation) and antithesis (avoidance) and the idea that resolves the conflict is synthesis (re-regulation).
Kist (2001)	The article elaborates on the potential synergies generated by the combination of banking, insurance and asset management businesses into financial conglomerates.	Successful financial conglomerates are superior to focused companies since they can use capital more efficiently. Moreover, they are better diversified and can easily offset risks. This diversity makes them more flexible to external changes. As a result financial conglomerates are expected to generate a higher and more stable earnings stream.
Lymperopoulos, Chaniotakis and Soureli (2003)	The paper examines the opportunities presented to Greek banks to cross-sell insurance products.	There are great opportunities for Greek bancassurers as customers are found to be more unaware of these products than willing to buy them.
McDaniel (1996)	The article provides a summary of bancassurance figures and practices around Europe and briefly analyses the structural modes of entry.	-
Merton (1990)	The paper discusses financial innovation and how the current regulatory system is inadequate to promote financial performance in markets.	As the lines between financial institutions are blurring it is considered essential that regulation moves from the institutional approach to a functional approach.
Morgan (1994)	The paper explores the evolution and future of the bancassurance phenomenon in the UK and provides three case studies (*for the same case studies see Morgan, Sturdy, Daniel and Knights, 1994*)	Although making bancassurance work is a difficult operation, the authors argue that the phenomenon will become more and more dominant in the UK in the future. This includes the move from the current tied agency system to a more integrated financial services arena.
Morgan, Sturdy, Daniel and Knights (1994)	The article examines the implementation of bancassurance and the problems that emerged in Britain and France via 6 case studies.	There are various operational difficulties in trying to combine deposit taking and insurance selling that mostly relate to cultural differences between the involved institutions. French banks and insurers have overcome these problems more easily than their UK counterparts which are more susceptible to change. It is stressed that successful organisations will be those who realise that bancassurance is part of a long-term process of change.
Ryan (2001)	The paper explores the drivers of consolidation in the financial services industry and the effects of this trend on various types of financial institutions. The paper also provides a good discussion on the regulatory framework in various regions of the world.	Globalisation, technological advances, deregulation, changes in demographics and increased customer sophistication are identified as the key factors driving convergence in the financial services industry.
Santomero (1989)	The paper reviews two volumes of conference articles on universal banks and financial change.	The author argues that in order to gain a perspective on the changing structure of financial institutions one has to address what the changes are, what are the forces driving them and the implications of such changes. More specifically, the shift towards universal banking seems to be happening across every country, to the extent allowed by the permissiveness of each national regulatory environment. The main forces behind this, are advances in technology and telecommunications, financial products, globalization and deregulation. On this latter point the author points out the need for an analytic framework to explain the process of change and its effects, rather than simply analysing the proximate causes of change. Finally, it is pointed out that the effects of the changing landscape extend beyond mere concerns for the safety and soundness of the system. The central issue is how to deal with the threats to the viability of each participant caused by alterations in their roles in the market.

Study	Objectives	Conclusions/Implications
Santomero and Eckles (2000)	The article provides an excellent discussion on the effects of financial modernization. The analysis starts by analysing firm level effects and proceeds to the discussion of public policy issues.	The synergies achieved via the universal firm system should drive the market towards the creation of an increasing number of such companies. Despite the synergies, the issues of the complexity, complacency and fragility of such universal firms remains serious. This is why the authors suggest that niche firms will not cease to exist, and that is more likely that a mix of specialised and universal firms will be the norm. On the public policy issues they suggest that regulatory intervention will be almost certain as these firms grow larger in size, yet competitive forces should to an extent auto-regulate the industry
Saunders (1994)	The article provides a discussion of the debate on the benefits and costs associated with the relaxation of the regulatory barriers that imposed restrictions on the affiliation between banks and commercial firms in the U.S.	By considering the advantages of a potential integration between the two industries he identifies 4 possible sources of benefits. First, potential cost and revenue synergies that may be experienced through either increased scale and scope economies or superior revenue generation are evaluated. While scale economies can be realised at an optimal output level, the full potential from scope economies is somewhat hinged by the regulatory "product-mix" restrictions. There are considerable opportunities for revenue expansion via effective cross-selling, that, in contrary to cost reduction opportunities can be achieved at a less than full organisational integration level. Second, if there exists an imperfect correlation between banking and commercial firm returns, aggregate profits in a universal bank or conglomerate will be smoother than those of each of the standalone/specialised operations. Geographic spread is equally important in stabilising risk and returns. Third, by allowing banks to integrate with commercial firms, the former will be able to boost their capital levels and in this way not only experience a direct improvement in their financial status but also indirectly benefit the tax-payers through promoting a more stable and safe banking system. The last benefit considered is the improvement in agency costs and corporate control. Regulatory constraints act as a shelter for incompetent managers and elevate agency costs, and deregulation may lead to a more efficient banking system. The disadvantages of such an integration lead to three sources of concern. First, there is a risk that the banking system will become increasingly concentrated and that a few gigantic conglomerates could monopolize the market. However, this is unlikely given that the U.S. banking industry is less concentrated than other industries like life insurance, P/C insurance and securities. Second, although conflicts of interest may arise, they could be effectively be offset by the corrective forces of competition, market demand, and careful supervision. Last but not least, the effects on the safety and soundness of the banking system and on the safety net are assessed, and solutions with respect to the appropriate safeguards and reforms to the insurance system are proposed.
Skipper (2000)	This article thoroughly analyses the dynamics of financial services integration from an economic, managerial and public policy perspective.	It is suggested that integration in the financial services is economically feasible if it leads to a reduction in operating costs and/or an increase in revenues.
Staikouras (2006)	The article provides a discussion of the market practices of bancassurance across Europe and an analysis of the various impediments in the successful integration of banking and insurance. Furthermore, it identifies the risk/success factors of the model and elaborates on various exogenous and idiosyncratic drivers that are crucial for the survival of hybrid institutions.	A three-dimensional, radar-shape approach for the distribution network of bancassurance model is proposed. The exogenous risk/success factors that are identified are economic growth, demographics, regulation and the tax environment. The endogenous risk/success factors are described as either strategic (business culture, corporate closeness, management initiative, corporate governance) or operational (branch environment, customer relations, range of services, financial management and brand awareness).

Study	Objectives	Conclusions/Implications
Szego (1986)	The paper examines the asset management models of banks and insurers. He suggests that banking and insurance are becoming increasingly interdependent due to the complementarities found in the structure of their cash flows.	The growing interaction between banks and insurers will manifest in the form of increasing competition and/or collaboration in the following ways: 1) Increased need for insurance cover by banks, 2) cross-selling of blended products and 3) in a form of competition in the areas of investment management and pension funds.
Taylor (1999)	The article briefly examines the causes and implications of the changes taking place in the financial services industry and provides a list of suggestions for managers of financial institutions.	The causes indentified are deregulation, privatization, the introduction of new technologies, the development of new products and increased cross-industry and cross-border competition. To cope with the changes in the financial services arena, managers should focus in the areas of environmental scanning, competitive and political intelligence, contingency planning, treasury management, public affairs, crisis management, overhead cost reduction, employee involvement, international strategies, new channels and customer service.
Thakor (1999)	The paper explores the issue of information technology and its links with financial services consolidation.	Traditional lines that kept information services and financial services apart are blurring. As such, financial services firms choose to consolidate instead of outsourcing their information technology in order to retain the strategic option of offering both financial and information services in the future.
Todd and Murray (1988)	The paper discusses whether banks should be allowed to enter insurance. It provides an examination of the regulatory framework in the US as well as a thorough analysis of the issue of coercion through a set of questionnaires completed by consumers and industry participants.	The authors report that coercion is not a significant factor in any of the questionnaires examined. They conclude that governments should not deal with coercion concerns by placing regulatory barriers between banks and insurance.
Wagner (2008)	The article presents a model where higher similarities are associated with lower externalities of bank risk-taking.	Inefficiencies appear in the economy because of an inability of the interbank market to reallocate liquidity among banks efficiently, during a crisis. When banks are more similar the need for such a reallocation is smaller and, as such, the costs of a liquidity crisis are reduced. It is shown that a bank's capital requirement can be lowered when the financial system overall is more homogenous. However, diversification can reduce welfare given the possibility that it can promote excessive risk taking by banks.
Wagner (2010)	The paper develops a theoretical model to analyse the impact of bank diversification and bank mergers on the risk of individual firms and that of the financial system.	Even though diversification reduces each institution's individual risk of failure, systemic crises are more likely to appear in the current financial industry, given that institutions are becoming increasingly similar through related diversification.
Van den Berghe and Verweire (2001)	The article provides an extensive analysis of the convergence between banking and insurance ranging from the simplest distributional level to full integration.	The combination of banking and insurance via bancassurance is just the initial step towards a more integrated relationship, one that will redefine the core business of financial institutions from a product (technical) to a client-oriented (functional) approach.
Van den Berghe, Verweire and Carchon (1999)	See *Van den Berghe and Verweire (2001)*	-
Voutilainen (2005)	The article explores the various aspects of bank-insurance alliances including the driving forces behind them. It then develops nine criteria to be followed for the creation of a successful alliance model.	Criteria for alliance model success 1) Maximisation of product development efficiency with focus on the design of hybrid products. 2) Maximisation of effectiveness of one-stop-shopping 3) Elimination of conflicting earnings logics between partners 4) CRM efficiency maximisation (possibly through the effective integration of the members' CRM systems.) 5) Cost and revenue synergy maximisation. 6) Minimisation of channel conflicts. 7) Optimisation of required solvency capital. 8) Investor power maximisation. 9) Maximisation of efficiency of sales management.

Study	Objectives	Conclusions/Implications
Walter (1997)	This article provides an extensive analysis of the structure of universal banks and of the economic benefits and costs associated with their operation. Public policy issues relating to universal banks are also adeptly discussed and examined.	Universal banks should not expect much gain from economies of scale, and supply side economies of scope. Instead, they should look out to exploit demand side scope economies and optimize X-efficiencies through the effective use of technology. The use of specialists and the elimination of conflicts of interest are also considered essential for universal banks that want to succeed.
Walter (2009)	The article provides an extensive analysis of the internal and external forces driving the changes in the financial services industry along with the consequences, such as the 2007-2009 financial crisis, and attempts to predict the future of the industry.	The main external cause of the changes in the financial services industry is the growing trend towards the reallocation of financial flows from financial intermediaries to the capital markets. From a firm level perspective, the forces responsible are economies of scale and scope, operating efficiencies and diversification. Extended government guarantees for too-big-to-fail companies have led to acute moral hazard issues that have in turn created the current financial crisis. The future of the financial services industry is likely to involve tighter regulation along with industry self-correction that will possibly align the interests of shareholders with those of the taxpayers. Nevertheless, market discipline is unlikely to be sustained in a hyper competitive market that will soon reappear and lead to the next crisis.

APPENDIX C

Table C.1. List of US deals announced before the FSMA 1999 and had been subject to regulatory approval

No	Pre FSMA US deals	Year	Deal Synopsis *(Thomson One Banker)*
1	Valley National - Western Security Life	1991	Valley National Bank, Phoenix, Arizona, a unit of Valley National Bancorp, acquired the 51% of Western Security Life Insurance that it did not already own from Lincoln National for $7.2 mil. **The transaction was approved by the Office of the Comptroller of the Currency**.
2	BB&T Financial Corp - West Insurance and Associates	1992	BB&T Financial acquired West Insurance & Associates in exchange for newly issued BB&T Financial common shares. **The transaction had been subject to regulatory approval**.
3	First Bank System Inc. - American Bankshares of Mankato Inc.	1993	First Bank System acquired both American Bankshares of Mankato and Eagle Insurance Agency. Term were not disclosed.
4	CNB Bancshares Inc. - Citizens Realty and Insurance Inc.	1994	CNB Bancshares agreed to acquire Citizens Realty and Insurance in a stock swap merger transaction.
5	First Financial Bancorp - Independent Bankers Life Insurance Co	1995	First Financial Bancorp acquired Independent Bankers Life Insurance Company of Indiana. Terms were not disclosed. **The transaction had been subject federal and state regulatory approval**.
6	Commerce Bancorp Inc. - Buckelew & Associates, Keystone National Insurance	1996	Commerce Bancorp (CB), Cherry Hill, New Jersey, acquired Buckelew & Associates and Keystone National Insurance in exchange for .55 mil common shares valued at $13.2 mil. The shares were valued based on CB's closing stock price of $24 on July 31, the last full trading day prior to announcement. **The transaction had been subject to federal and state banking regulatory approval**.
7	Fort Wayne National Corp - Ambassador Group Inc.	1997	Fort Wayne National acquired Ambassador Group. Terms were not disclosed.
8	Centura Bank Inc. - Betts & Co	1997	Centura Bank, located in Rocky Mount, North Carolina, acquired Betts. Terms were not disclosed. **The transaction had been subject to federal and state banking regulatory approval**.
9	Citicorp - Travelers Group	1998	Travelers Group Inc (TG) merged with Citicorp (CC) to form Citigroup Inc (CGI) in a merger-of-equals stock swap transaction valued at $72.558 bil. CC common shareholders received 2.5 CGI common shares and TG common shareholders received 1 CGI common share per share held. Based on TG's closing stock price of $61.6875 on April 3, the last full trading day prior to the announcement, each CC share was valued at $154.219. **The transaction was accounted for as a pooling of interests and had been subject to regulatory approval**. Upon completion, both TG and CC shareholders each owned 50% in CG.

10	Hibernia Corp - FPS Financial Services	1998	Hibernia Corp located in New Orleans, Lousiana, acquired FPS Financial Services.

The table lists and presents further information on deals that are included in our sample and were announced before the FSMA (1999), in the United States. Given the restrictions on the bank-insurance interface prior to this Act, these deals had been subject to regulatory approval that was consequently given.

APPENDIX D

Table D.1. Determinants of bancassurance deal excess returns (all deals)

Variable	Model 1							Model 2						
	(-2,0)	(-2,+1)	(-2,+2)	(0,0)	(0,+1)	(0,+2)	(0,+5)	(-2,0)	(-2,+1)	(-2,+2)	(0,0)	(0,+1)	(0,+2)	(0,+5)
Intercept	-0.012	0.078	0.132	-0.029	0.061	0.115	0.092	0.013	0.111	0.117	-0.016	0.063	0.065	0.095
	-(0.20)	-(1.29)	-(1.86)[a]	-(0.50)	-(1.08)	-(1.78)[c]	-(1.54)	-(0.27)	-(2.62)[a]	-(2.32)[b]	-(1.16)	-(1.59)	-(1.40)	-(1.97)[b]
Market to book	-0.001	-0.002	-0.005	-0.001	-0.002	-0.005	-0.007							-0.008
	-(0.21)	-(0.76)	-(1.45)	-(0.37)	-(0.96)	-(1.72)[c]	-(2.84)[a]							-(3.34)[a]
Leverage	0.001	0.001	0.000	0.000	0.000	-0.001	-0.001	0.001						-0.001
	-(1.32)	-(0.79)	-(0.42)	-(0.59)	(0.00)	-(1.20)	-(1.56)	-(1.27)						-(2.30)[b]
NII pct TOI	-0.063	-0.082	-0.119	-0.047	-0.065	-0.102	-0.124	-0.076	-0.094	-0.122	-0.058	-0.066	-0.090	-0.123
	-(1.61)	-(2.14)[b]	-(2.66)[a]	-(1.28)	-(1.84)[c]	-(2.51)[b]	-(3.27)[a]	-(2.14)[b]	-(2.74)[a]	-(2.99)[a]	-(1.81)[c]	-(2.06)[b]	-(2.40)[b]	-(3.47)[a]
Relative Deal size	0.044	0.047	0.051	0.048	0.050	0.055	0.063	0.048	0.053	0.050	0.054	0.054	0.052	0.062
	-(2.50)[b]	-(2.71)[a]	-(2.53)[b]	-(2.89)[a]	-(3.12)[a]	-(2.96)[a]	-(3.69)[a]	-(2.87)[a]	-(3.36)[a]	-(2.72)[a]	-(3.54)[a]	-(3.71)[a]	-(3.07)[a]	-(3.76)[a]
Return on equity	0.001	0.001	0.001	0.001	0.001	0.001	0.001					0.001	0.002	0.001
	-(0.99)	-(1.20)	-(1.23)	-(1.59)	-(1.83)[c]	-(1.83)[c]	-(1.69)[c]					-(2.09)[b]	-(2.38)[b]	-(2.09)[b]
DBB*	-0.034	-0.108	-0.128	-0.012	-0.087	-0.107	-0.079	-0.038	-0.114	-0.118		-0.092	-0.100	-0.074
	-(0.79)	-(2.60)[a]	-(2.62)[a]	-(0.31)	-(2.23)[b]	-(2.39)[b]	-(1.90)[c]	-(0.95)	-(3.02)[a]	-(2.63)[a]		-(2.61)[a]	-(2.41)[b]	-(1.88)[c]
DDOM*	0.009	0.008	-0.006	0.006	0.005	-0.010	-0.004							
	-(0.55)	-(0.50)	-(0.32)	-(0.36)	-(0.30)	-(0.56)	-(0.26)							
DUS*	0.050	0.032	0.027	0.046	0.028	0.023	0.019	0.050	0.028	0.033	0.038	0.027	0.032	
	-(3.06)[a]	-(2.00)[b]	-(1.42)	-(3.02)[a]	-(1.88)[c]	-(1.33)	-(1.19)	-(3.32)[a]	-(2.11)[b]	-(2.08)[b]	-(2.99)[a]	-(2.24)[b]	-(2.20)[b]	
DFSMA*	-0.007	-0.001	0.001	-0.006	0.000	0.002	0.006							
	-(0.58)	-(0.12)	-(0.06)	-(0.51)	-(0.01)	-(0.17)	-(0.58)							
N	47	47	47	47	47	47	47	47	49	49	49	49	49	47
F-value	2.84	3.18	2.92	2.98	3.15	3.34	4.84	5.21	6.82	5.72	7.66	5.94	5.53	7.08
Adjusted R^2	0.27	0.30	0.27	0.28	0.30	0.31	0.43	0.31	0.33	0.28	0.29	0.34	0.32	0.44
AIC	-3.53	-3.58	-3.26	-3.66	-3.73	-3.45	-3.60	-3.66	-3.75	-3.40	-3.81	-3.89	-3.56	-3.67

The sample here consists of 120 bancassurance deals announced between 1990 and 2006, excluding deals where the targets are insurance agencies. The unavailability of accounting or deal specific data for some companies/deals produces a final sample of 47 to 49 deals depending on the selected model. The abnormal returns are taken from the market model, where market risk is represented by the pertinent wide market index. The figures represent coefficient estimates while those in brackets indicate t-values (White errors).

CAR stands for the bidder cumulative abnormal returns, α is the constant, F represents the exogenous factors listed in the first column of the table.

* DBB is the dummy taking into account the fact that the bidder is a bank, DDOM is the dummy taking into account domestic deals, DUS is the dummy taking into account U.S. bidders and DFSMA is the dummy variable taking into account deals that were announced after the passage of the Financial Services Modernization Act (1999).

a/b/c denote statistical significance at the 1%, 5% and 10% level.

Table D.2. Determinants of bank-insurance deal excess returns (bank bidders)

Variable	Model 1							Model 2						
	(-2,0)	(-2,+1)	(-2,+2)	(0,0)	(0,+1)	(0,+2)	(0,+5)	(-2,0)	(-2,+1)	(-2,+2)	(0,0)	(0,+1)	(0,+2)	(0,+5)
Intercept	-0.046	-0.030	0.004	-0.042	-0.026	0.008	0.013	-0.036	-0.012	-0.015	-0.034	-0.030	-0.035	0.020
	-(1.23)	-(0.83)	-(0.09)	-(1.18)	-(0.75)	-(0.21)	-(0.36)	-(1.47)	-(0.64)	-(0.68)	-(1.89)[c]	-(1.72)[c]	-(1.74)[c]	-(0.83)
Market to book	-0.001	-0.002	-0.005	-0.001	-0.002	-0.005	-0.007		-0.002	-0.004				-0.008
	-(0.21)	-(0.76)	-(1.45)	-(0.37)	-(0.96)	-(1.72)[c]	-(2.84)[a]		-(1.00)	-(1.44)				-(3.34)[a]
Leverage	0.001	0.001	0.000	0.000	0.000	-0.001	-0.001	0.001						-0.001
	-(1.32)	-(0.79)	-(0.42)	-(0.59)	(0.00)	-(1.20)	-(1.56)	-(1.35)						-(2.30)[b]
NII pct TOI	-0.063	-0.082	-0.119	-0.047	-0.065	-0.102	-0.124	-0.071	-0.087	-0.111	-0.053	-0.066	-0.090	-0.123
	-(1.61)	-(2.14)[b]	-(2.66)[a]	-(1.28)	-(1.84)[c]	-(2.51)[b]	-(3.27)[a]	-(1.96)[b]	-(2.53)[b]	-(2.78)[a]	-(1.59)	-(2.06)[b]	-(2.40)[b]	-(3.47)[a]
Relative Deal size	0.044	0.047	0.051	0.048	0.050	0.055	0.063	0.048	0.052	0.050	0.055	0.054	0.052	0.062
	-(2.50)[b]	-(2.71)[a]	-(2.53)[b]	-(2.89)[a]	-(3.12)[a]	-(2.96)[a]	-(3.69)[a]	-(2.88)[a]	-(3.35)[a]	-(2.76)[a]	-(3.64)[a]	-(3.71)[a]	-(3.07)[a]	-(3.76)[a]
Return on equity	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001
	-(0.99)	-(1.20)	-(1.23)	-(1.59)	-(1.83)[c]	-(1.83)[c]	-(1.69)[c]	-(0.77)	-(1.26)	-(1.70)[c]	-(1.65)[c]	-(2.09)[b]	-(2.38)[b]	-(2.09)[b]
DDOM*	0.009	0.008	-0.006	0.006	0.005	-0.010	-0.004							
	-(0.55)	-(0.50)	-(0.32)	-(0.36)	-(0.30)	-(0.56)	-(0.26)							
DUS*	0.050	0.032	0.027	0.046	0.028	0.023	0.019	0.050	0.024	0.027	0.038	0.027	0.032	
	-(3.06)[a]	-(2.00)[b]	-(1.42)	-(3.02)[a]	-(1.88)[c]	-(1.33)	-(1.19)	-(3.28)[a]	-(1.82)[c]	-(1.73)[c]	-(2.94)[a]	-(2.24)[b]	-(2.20)[b]	
DFSMA*	-0.007	-0.001	0.001	-0.006	0.000	0.002	0.006							
	-(0.58)	-(0.12)	-(0.06)	-(0.51)	-(0.01)	-(0.17)	-(0.58)							
N	46	46	46	46	46	46	46	46	48	48	48	48	48	46
F-value	3.16	2.93	2.88	3.35	3.21	3.57	5.41	5.21	4.82	5.02	6.55	6.68	6.50	8.43
Adjusted R^2	0.28	0.26	0.25	0.30	0.28	0.31	0.44	0.32	0.29	0.30	0.32	0.33	0.32	0.45
AIC	-3.54	-3.60	-3.27	-3.68	-3.74	-3.46	-3.61	-3.65	-3.73	-3.44	-3.81	-3.90	-3.58	-3.69

The sample here consists of 100 bancassurance deals announced between 1990 and 2006 where the bidder is a bank and the target an insurance firm, excluding deals where the targets are insurance agencies. The unavailability of accounting or deal specific data for some companies/deals produces a final sample of 46 to 48 deals depending on the selected model. The cumulative abnormal returns are taken from the market model, where market risk is represented by the pertinent wide market index. The figures represent coefficient estimates while those in brackets indicate t-values (White errors).

CAR stands for the bidder cumulative abnormal returns, α is the constant, F represents the exogenous factors listed in the first column of the table.

* DDOM is the dummy taking into account domestic deals, DUS is the dummy taking into account U.S. bidders and DFSMA is the dummy variable taking into account deals that were announced after the passage of the Financial Services Modernization Act (1999).

a/b/c denote statistical significance at the 1%, 5% and 10% level.

APPENDIX E

Table E.1. Total risk regressions of bank-insurance deals

All betas have been multiplied by 10^4						
Panel A: Period before announcement						
	1	**2**	**3**	**4**	**5**	**6**
Constant	3.400	3.790	4.200	5.520	6.020	5.490
	(3.67)[a]	(4.18)[a]	(2.60)[a]	(3.74)[a]	(4.29)[a]	(3.15)[a]
Non-interest income share	-1.170	-1.390	-3.420			
	-(0.57)	-(0.66)	-(0.98)			
Loans to total assets				-3.430	-4.220	-3.530
				-(1.65)[c]	-(2.04)[b]	-(1.43)
Non-performing loans to total assets			-20.280			-15.690
			-(0.51)			-(0.97)
Provision for loan losses to total assets	209.640			189.150		
	(1.66)[c]			(1.47)		
Loan losses to total assets		0.655			0.429	
		(1.51)			(0.82)	
ROA	0.188	0.137	0.419	0.217	0.499	0.608
	(0.42)	(0.28)	(0.68)	(0.53)	(1.45)	(1.21)
Leverage	0.012	0.009	0.009	0.008	0.005	0.011
	(0.34)	(0.24)	(0.17)	(0.24)	(0.15)	(0.22)
Firm size	-0.101	-0.087	0.191	-0.152	-0.137	-0.009
	-(0.51)	-(0.43)	(0.94)	-(0.79)	-(0.69)	-(0.05)
N	85	85	66	85	85	66
Adjusted R-squared	0.01	-0.01	-0.05	0.03	0.00	-0.04
F-statistic	1.11	0.76	0.42	1.43	1.04	0.44
Panel B: Period after announcement						
	1	**2**	**3**	**4**	**5**	**6**
Constant	0.527	1.400	1.890	5.930	8.190	8.900
	(0.42)	(1.22)	(1.06)	(1.89)[c]	(3.26)[a]	(3.41)[a]
Non-interest income share	1.280	-0.351	2.010			
	(0.62)	-(0.15)	(0.51)			
Loans to total assets				-6.590	-7.830	-8.680
				-(2.11)[b]	-(2.72)[a]	-(2.55)[b]
Non-performing loans to total assets			54.480			23.500
			(1.29)			(0.65)
Provision for loan losses to total assets	509.690			428.910		
	(2.03)[b]			(1.72)[c]		
Loan losses to total assets		2.630			2.010	
		(2.45)[b]			(1.80)[c]	
ROA	1.070	0.898	0.856	0.781	0.697	0.945
	(1.86)[c]	(1.51)	(0.67)	(1.35)	(1.18)	(0.81)
Leverage	-0.001	-0.009	0.052	-0.017	-0.021	0.029
	-(0.05)	-(0.33)	(0.76)	-(0.53)	-(0.68)	(0.53)
Firm size	-0.258	-0.323	-0.237	-0.319	-0.376	-0.428
	-(0.95)	-(1.19)	-(0.75)	-(1.29)	-(1.54)	-(1.55)
N	73	73	55	73	73	55
Adjusted R-squared	0.18	0.17	-0.02	0.24	0.20	0.14
F-statistic	4.17	3.90	0.74	5.63	4.70	2.82

The table presents OLS regressions of bank total risk, $\sigma^2 R_i$, on measures of revenue and asset diversification, risk proxies, profitability and size variables, before and after the announcement of bank-insurance deals. Panel A presents the results from the pre-announcement regressions while Panel B presents the results from the post-announcement regressions. The sample consists of 100 bancassurance deal announcements between 1990 and 2006. The independent variables are presented in the first column, while columns 1 to 6 contain the results from different regressions. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing three sets of regressions. In all models a number of bank-specific characteristics are employed as control variables (ROA, leverage, firm size). In cases where independent variables are correlated with one another auxiliary regressions are employed in order to make them orthogonal. Non-interest income share is the ratio of non-interest income to total operating

income, ROA is the ratio of net income to total assets, Leverage is the ratio of total assets to common equity, and Firm size is the natural logarithm of total assets. The rest of the variables are self explanatory. All balance sheet and income statement variables for the pre- and post-announcement regressions are obtained at the year end prior to and after the announcement, respectively.
The figures in brackets indicate t-values (White errors), while a/b/c denote statistical significance at the 1%, 5% and 10%, respectively.

Table E.2. Total risk regressions of bank-insurance agency deals

All betas have been multiplied by 10^4						
Panel A: Period before announcement						
	1	**2**	**3**	**4**	**5**	**6**
Constant	5.990	5.860	5.280	2.060	1.940	0.881
	(3.70)[a]	(4.44)[a]	(3.14)[a]	(1.07)	(0.97)	(0.47)
Non-interest income share	-9.560	-9.710	-9.860			
	-(1.97)[b]	-(1.90)[c]	-(1.98)[b]			
Loans to total assets				3.670	3.890	3.720
				(1.40)	(1.52)	(1.44)
Non-performing loans to total assets			168.410			171.520
			(0.90)			(0.93)
Provision for loan losses to total assets	-62.450			-204.340		
	-(0.24)			-(0.71)		
Loan losses to total assets		-0.720			-1.400	
		-(0.44)			-(0.78)	
ROA	0.758	0.725	0.823	0.307	0.264	0.377
	(0.80)	(0.77)	(0.86)	(0.35)	(0.31)	(0.44)
Leverage	-0.020	-0.020	-0.022	0.003	0.004	0.005
	-(0.40)	-(0.38)	-(0.46)	(0.05)	(0.08)	(0.09)
Firm size	-0.530	-0.510	-0.537	-0.610	-0.610	-0.623
	-(1.37)	-(1.31)	-(1.38)	-(1.74)[c]	-(1.73)[c]	-(1.74)[c]
N	79	79	79	79	79	79
Adjusted R-squared	0.00	0.00	0.00	0.00	0.00	0.01
F-statistic	0.94	0.92	1.03	0.98	0.98	1.09
Panel B: Period after announcement						
	1	**2**	**3**	**4**	**5**	**6**
Constant	4.880	4.930	3.170	1.890	1.540	-0.017
	(4.82)[a]	(5.01)[a]	(1.65)[c]	(0.78)	(0.66)	(0.00)
Non-interest income share	-4.110	-4.360	-3.970			
	-(1.23)	-(1.32)	-(1.19)			
Loans to total assets				2.540	3.400	3.250
				(0.89)	(1.18)	(1.02)
Non-performing loans to total assets			8.480			-18.940
			(0.05)			-(0.09)
Provision for loan losses to total assets	317.180			135.630		
	(1.32)			(0.73)		
Loan losses to total assets		2.240			0.813	
		(1.48)			(0.87)	
ROA	-0.159	-0.015	0.105	-0.241	-0.153	-0.003
	-(0.16)	-(0.02)	(0.09)	-(0.25)	-(0.16)	(0.00)
Leverage	0.006	0.005	0.143	0.021	0.026	0.167
	(0.11)	(0.08)	(1.13)	(0.34)	(0.41)	(1.25)
Firm size	-0.387	-0.342	-0.323	-0.436	-0.426	-0.360
	-(1.83)[c]	-(1.54)	-(1.43)	-(2.38)[b]	-(2.35)[b]	-(1.88)[c]
N	74	74	73	74	74	73
Adjusted R-squared	0.03	0.03	0.02	0.03	0.02	0.03
F-statistic	1.49	1.46	1.33	1.38	1.37	1.50

The table presents OLS regressions of bank total risk, $\sigma^2 R_i$, on measures of revenue and asset diversification, risk proxies, profitability and size variables, before and after the announcement of bank-insurance agency deals. Panel A presents the results from the pre-announcement regressions while Panel B presents the results from the post-announcement regressions. The sample consists of 100 bancassurance deal announcements between 1990 and 2006. The independent variables are presented in the first column, while columns 1 to 6 contain the results from different regressions. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing three sets of regressions. In all models a number of bank-specific characteristics are employed as control variables (ROA, leverage, firm size). In cases where independent variables are correlated with one another auxiliary regressions are employed in order to make them orthogonal. Non-interest income share is the ratio of non-interest income to total operating income, ROA is the ratio of net income to total assets, Leverage is the ratio of total assets to common equity, and Firm size is the natural logarithm of total assets. The rest of the variables are self explanatory. All balance sheet and income statement variables for the pre- and post-announcement regressions are obtained at the year end prior to and after the announcement, respectively.

The figures in brackets indicate t-values (White errors), while a/b/c denote statistical significance at the 1%, 5% and 10%,

respectively.

Table E.3. Market beta regressions of bank-insurance deals (completion)

	Panel A: Period before completion					
	1	**2**	**3**	**4**	**5**	**6**
Constant	0.334	0.358	0.359	0.717	0.750	0.733
	(3.95)[a]	(4.25)[a]	(3.59)[a]	(4.18)[a]	(4.35)[a]	(3.05)[a]
Non-interest income share	0.900	0.911	1.153			
	(5.26)[a]	(5.16)[a]	(3.68)[a]			
Loans to total assets				-0.212	-0.238	-0.187
				-(1.04)	-(1.17)	-(0.55)
Non-performing loans to total assets			-4.977			-5.352
			-(0.79)			-(0.84)
Provision for loan losses to total assets	4.193			5.379		
	(0.37)			(0.46)		
Loan losses to total assets		-0.017			-0.007	
		-(0.32)			-(0.13)	
ROA	-0.037	-0.032	0.008	-0.041	-0.037	-0.005
	-(0.66)	-(0.53)	(0.09)	-(0.77)	-(0.66)	-(0.06)
Leverage	0.013	0.012	0.010	0.013	0.013	0.011
	(3.60)[a]	(3.43)[a]	(2.39)[b]	(3.64)[a]	(3.50)[a]	(2.25)[b]
Firm size	0.156	0.158	0.155	0.160	0.162	0.173
	(8.41)[a]	(8.33)[a]	(6.32)[a]	(9.55)[a]	(9.26)[a]	(7.78)[a]
N	80	80	62	80	80	62
Adjusted R-squared	0.47	0.46	0.45	0.47	0.47	0.44
F-statistic	14.74	14.73	10.83	14.84	14.78	10.74
	Panel B: Period after completion					
	1	**2**	**3**	**4**	**5**	**6**
Constant	0.882	0.870	1.023	0.975	0.958	0.778
	(6.43)[a]	(6.58)[a]	(4.49)[a]	(3.88)[a]	(3.67)[a]	(2.75)[a]
Non-interest income share	0.201	0.197	0.336			
	(0.73)	(0.71)	(0.81)			
Loans to total assets				-0.065	-0.054	0.061
				-(0.21)	-(0.17)	(0.17)
Non-performing loans to total assets			-15.829			-14.504
			-(3.14)[a]			-(2.65)[a]
Provision for loan losses to total assets	-3.502			-2.373		
	-(0.36)			-(0.25)		
Loan losses to total assets		-0.009			-0.001	
		-(0.18)			-(0.02)	
ROA	-0.109	-0.109	-0.187	-0.112	-0.112	-0.191
	-(2.53)[b]	-(2.38)[b]	-(2.27)[b]	-(2.38)[b]	-(2.31)[b]	-(2.38)[b]
Leverage	0.005	0.005	0.000	0.005	0.005	0.002
	(1.56)	(1.63)	-(0.03)	(1.50)	(1.55)	(0.25)
Firm size	0.099	0.099	0.105	0.097	0.096	0.110
	(3.62)[a]	(3.50)[a]	(3.58)[a]	(3.58)[a]	(3.50)[a]	(3.81)[a]
N	76	76	59	76	76	59
Adjusted R-squared	0.14	0.14	0.18	0.14	0.14	0.18
F-statistic	3.41	3.40	3.62	3.42	3.41	3.63

The table presents OLS regressions of bank market beta, β, on measures of revenue and asset diversification, risk proxies, profitability and size variables, before and after the completion of bank-insurance deals. Panel A presents the results from the pre-completion regressions while Panel B presents the results from the post-completion regressions. The sample consists of 100 bancassurance deal announcements between 1990 and 2006. The independent variables are presented in the first column, while columns 1 to 6 contain the results from different regressions. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing three sets of regressions. In all models a number of bank-specific characteristics are employed as control variables (ROA, leverage, firm size). In cases where independent variables are correlated with one another auxiliary regressions are employed in order to make them orthogonal. Non-interest income share is the ratio of non-interest income to total operating income, ROA is the ratio of net income to total assets, Leverage is the ratio of total assets to common equity, and Firm size is the natural logarithm of total assets. The rest of the variables are self explanatory. All balance sheet and income statement variables for the pre- and post-completion regressions are obtained at the year end prior to and after the deals' completion, respectively.

The figures in brackets indicate t-values (White errors), while a/b/c denote statistical significance at the 1%, 5% and 10%, respectively.

Table E.4. Idiosyncratic risk regressions of bank-insurance deals (completion)

All betas have been multiplied by 10^4

Panel A: Period before completion						
	1	**2**	**3**	**4**	**5**	**6**
Constant	3.660	3.870	5.000	2.700	3.440	3.900
	(5.70)[a]	(5.27)[a]	(4.61)[a]	(2.04)[b]	(2.92)[a]	(2.63)[a]
Non-interest income share	-3.510	-3.650	-5.410			
	-(2.20)[b]	-(2.36)[b]	-(1.78)[c]			
Loans to total assets				-0.551	-1.050	-0.134
				-(0.30)	-(0.60)	-(0.06)
Non-performing loans to total assets			-44.930			-42.990
			-(1.49)			-(1.47)
Provision for loan losses to total assets	128.030			114.570		
	(1.60)			(1.16)		
Loan losses to total assets		0.435			0.315	
		(1.01)			(0.70)	
ROA	0.470	0.412	0.351	0.475	0.451	0.467
	(1.14)	(1.15)	(0.72)	(1.59)	(1.49)	(1.04)
Leverage	-0.031	-0.033	-0.040	-0.034	-0.036	-0.039
	-(1.36)	-(1.59)	-(1.35)	-(1.76)[c]	-(1.78)[c]	-(1.50)
Firm size	-0.539	-0.532	-0.290	-0.571	-0.564	-0.454
	-(3.68)[a]	-(3.84)[a]	-(1.76)[c]	-(4.10)[a]	-(3.90)[a]	-(2.92)[a]
N	80	80	62	80	80	62
Adjusted R-squared	0.19	0.18	0.15	0.20	0.19	0.13
F-statistic	4.80	4.49	3.21	5.06	4.71	2.86
Panel B: Period after completion						
	1	**2**	**3**	**4**	**5**	**6**
Constant	2.200	2.720	2.120	4.910	5.620	5.670
	(2.90)[a]	(3.60)[a]	(1.67)[c]	(2.42)[b]	(3.31)[a]	(3.26)[a]
Non-interest income share	-0.300	-0.169	0.685			
	-(0.16)	-(0.10)	(0.22)			
Loans to total assets				-3.820	-4.290	-4.910
				-(1.73)[c]	-(2.12)[b]	-(2.14)[b]
Non-performing loans to total assets			61.000			34.220
			(1.90)[c]			(1.29)
Provision for loan losses to total assets	139.520			110.720		
	(1.15)			(0.90)		
Loan losses to total assets		0.679			0.431	
		(1.37)			(0.91)	
ROA	0.092	0.033	0.089	0.032	0.010	0.206
	(0.29)	(0.11)	(0.21)	(0.12)	(0.04)	(0.54)
Leverage	-0.011	-0.014	0.009	-0.019	-0.021	0.002
	-(0.54)	-(0.75)	(0.21)	-(0.83)	-(0.98)	(0.07)
Firm size	-0.498	-0.520	-0.514	-0.526	-0.533	-0.578
	-(2.44)[b]	-(2.53)[b]	-(2.23)[b]	-(2.93)[a]	-(2.97)[a]	-(2.80)[a]
N	76	76	59	76	76	59
Adjusted R-squared	0.10	0.10	0.13	0.17	0.16	0.25
F-statistic	2.59	2.59	2.66	4.14	3.90	4.78

The table presents OLS regressions of bank idiosyncratic risk, σ_ε^2, on measures of revenue and asset diversification, risk proxies, profitability and size variables, before and after the completion of bank-insurance deals. Panel A presents the results from the pre-completion regressions while Panel B presents the results from the post-completion regressions. The sample consists of 100 bancassurance deal announcements between 1990 and 2006. The independent variables are presented in the first column, while columns 1 to 6 contain the results from different regressions. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing three sets of regressions. In all models a number of bank-specific characteristics are employed as control variables (ROA, leverage, firm size). In cases where independent variables are correlated with one another auxiliary regressions are employed in order to make them orthogonal. Non-interest income share is the ratio of non-interest income to total operating income, ROA is the ratio of net income to total assets, Leverage is the ratio of total assets to common equity, and Firm size is the natural logarithm of total assets. The rest of the variables are self explanatory. All balance sheet and income statement variables for the pre- and post-completion regressions are obtained at the year end prior to and after the completion, respectively.

The figures in brackets indicate t-values (White errors), while a/b/c denote statistical significance at the 1%, 5% and 10%,

respectively.

Table E.5. Total risk regressions of bank-insurance deals (completion)

All betas have been multiplied by 10^4						
Panel A: Period before completion						
	1	**2**	**3**	**4**	**5**	**6**
Constant	2.880	3.340	4.980	3.180	5.130	5.880
	(3.20)[a]	(3.72)[a]	(3.93)[a]	(1.89)[c]	(3.44)[a]	(3.46)[a]
Non-interest income share	-0.749	-1.140	-2.390			
	-(0.44)	-(0.66)	-(0.71)			
Loans to total assets				-1.910	-3.170	-2.170
				-(0.88)	-(1.53)	-(0.87)
Non-performing loans to total assets			-50.430			-46.930
			-(1.28)			-(1.19)
Provision for loan losses to total assets	316.810			296.400		
	(2.11)[b]			(1.93)[c]		
Loan losses to total assets		1.180			1.070	
		(1.53)			(1.34)	
ROA	0.775	0.606	0.839	0.674	0.561	0.956
	(1.61)	(1.22)	(1.31)	(1.54)	(1.23)	(1.59)
Leverage	0.011	0.007	-0.010	0.007	0.004	-0.011
	(0.36)	(0.23)	-(0.24)	(0.25)	(0.14)	-(0.28)
Firm size	-0.281	-0.274	-0.010	-0.261	-0.263	-0.025
	-(1.50)	-(1.35)	-(0.24)	-(1.40)	-(1.30)	-(0.13)
N	80	80	62	80	80	62
Adjusted R-squared	0.08	0.05	-0.03	0.09	0.05	0.00
F-statistic	2.44	1.77	0.64	2.59	1.88	0.63
Panel B: Period after completion						
	1	**2**	**3**	**4**	**5**	**6**
Constant	2.570	3.560	2.580	7.990	9.420	8.020
	(2.36)[b]	(3.47)[a]	(1.65)[c]	(3.14)[a]	(4.76)[a]	(4.07)[a]
Non-interest income share	1.840	2.080	3.420			
	(0.68)	(0.83)	(0.91)			
Loans to total assets				-6.860	-7.790	-7.430
				-(2.57)[a]	-(3.31)[a]	-(2.98)[a]
Non-performing loans to total assets			57.780			27.030
			(1.41)			(0.81)
Provision for loan losses to total assets	265.930			224.790		
	(1.51)			(1.27)		
Loan losses to total assets		1.320			0.989	
		(1.80)[c]			(1.37)	
ROA	-0.137	-0.253	-0.190	-0.263	-0.322	-0.045
	-(0.27)	-(0.52)	-(0.32)	-(0.60)	-(0.79)	-(0.10)
Leverage	0.013	0.008	0.044	-0.002	-0.005	0.038
	(0.45)	(0.30)	(0.79)	-(0.06)	-(0.17)	(0.87)
Firm size	-0.243	-0.286	-0.190	-0.272	-0.297	-0.257
	-(1.09)	-(1.32)	-(0.75)	-(1.44)	-(1.61)	-(1.20)
N	76	76	59	76	76	59
Adjusted R-squared	0.05	0.05	0.00	0.14	0.12	0.15
F-statistic	1.72	1.78	1.04	3.36	3.04	3.04

The table presents OLS regressions of bank total risk, $\sigma^2 R_i$, on measures of revenue and asset diversification, risk proxies, profitability and size variables, before and after the completion of bank-insurance deals. Panel A presents the results from the pre-completion regressions while Panel B presents the results from the post-completion regressions. The sample consists of 100 bancassurance deal announcements between 1990 and 2006. The independent variables are presented in the first column, while columns 1 to 6 contain the results from different regressions. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing three sets of regressions. In all models a number of bank-specific characteristics are employed as control variables (ROA, leverage, firm size). In cases where independent variables are correlated with one another auxiliary regressions are employed in order to make them orthogonal. Non-interest income share is the ratio of non-interest income to total operating income, ROA is the ratio of net income to total assets, Leverage is the ratio of total assets to common equity, and Firm size is the natural logarithm of total assets. The rest of the variables are self explanatory. All balance sheet and income statement variables for the pre- and post-completion regressions are obtained at the year end prior to and after the completion, respectively.

The figures in brackets indicate t-values (White errors), while a/b/c denote statistical significance at the 1%, 5% and 10%, respectively.

Table E.6. Market beta regressions of bank-insurance agency deals (completion)

Panel A: Period before completion						
	1	**2**	**3**	**4**	**5**	**6**
Constant	0.121	0.131	0.018	-0.039	-0.080	-0.039
	(1.03)	(1.09)	(0.14)	-(0.16)	-(0.35)	-(0.17)
Non-interest income share	1.771	1.765	1.731			
	(5.10)[a]	(5.02)[a]	(4.85)[a]			
Loans to total assets				0.804	0.642	0.623
				(2.32)[b]	(1.91)[c]	(1.83)[c]
Non-performing loans to total assets			35.369			38.715
			(2.33)[b]			(2.57)[a]
Provision for loan losses to total assets	48.315			58.073		
	(2.46)[b]			(2.96)[a]		
Loan losses to total assets		0.275			0.409	
		(2.11)[b]			(3.48)[a]	
ROA	0.177	0.181	0.175	0.214	0.224	0.216
	(2.47)[b]	(2.48)[b]	(2.35)[b]	(3.27)[a]	(3.41)[a]	(3.27)[a]
Leverage	0.011	0.011	0.010	0.009	0.008	0.007
	(1.55)	(1.43)	(1.53)	(1.02)	(0.95)	(0.93)
Firm size	0.091	0.095	0.088	0.122	0.121	0.115
	(3.04)[a]	(3.27)[a]	(3.10)[a]	(6.29)[a]	(6.47)[a]	(6.25)[a]
N	79	79	79	79	79	79
Adjusted R-squared	0.27	0.26	0.28	0.28	0.28	0.29
F-statistic	6.68	6.62	7.04	7.08	7.07	7.39
Panel B: Period after completion						
	1	**2**	**3**	**4**	**5**	**6**
Constant	0.580	0.588	0.511	-0.102	-0.001	-0.291
	(3.40)[a]	(3.46)[a]	(1.81)[a]	-(0.30)	(0.00)	-(0.63)
Non-interest income share	0.430	0.416	0.431			
	(1.06)	(0.98)	(1.05)			
Loans to total assets				1.142	1.000	1.114
				(1.97)[b]	(1.88)[c]	(2.06)[b]
Non-performing loans to total assets			27.665			25.519
			(0.93)			(0.85)
Provision for loan losses to total assets	13.743			9.995		
	(0.37)			(0.26)		
Loan losses to total assets		-0.137			0.196	
		-(0.59)			(0.93)	
ROA	0.098	0.106	0.195	0.128	0.128	0.162
	(0.76)	(0.81)	(1.38)	(0.95)	(0.96)	(1.12)
Leverage	0.004	0.003	0.001	0.006	0.007	0.005
	(0.72)	(0.65)	(0.10)	(1.16)	(1.29)	(0.39)
Firm size	0.095	0.094	0.094	0.099	0.093	0.095
	(3.47)[a]	(3.36)[a]	(3.47)[a]	(3.82)[a]	(3.56)[a]	(3.78)[a]
N	74	74	73	74	74	73
Adjusted R-squared	0.05	0.05	0.07	0.11	0.11	0.12
F-statistic	1.76	1.80	2.02	2.89	2.83	2.92

The table presents OLS regressions of bank market beta, β, on measures of revenue and asset diversification, risk proxies, profitability and size variables, before and after the completion of bank-insurance agency deals. Panel A presents the results from the pre-completion regressions while Panel B presents the results from the post-completion regressions. The sample consists of 90 bancassurance deal announcements between 1990 and 2006. The independent variables are presented in the first column, while columns 1 to 6 contain the results from different regressions. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing three sets of regressions. In all models a number of bank-specific characteristics are employed as control variables (ROA, leverage, firm size). In cases where independent variables are correlated with one another auxiliary regressions are employed in order to make them orthogonal. Non-interest income share is the ratio of non-interest income to total operating income, ROA is the ratio of net income to total assets, Leverage is the ratio of total assets to common equity, and Firm size is the natural logarithm of total assets. The rest of the variables are self explanatory. All balance sheet and income statement variables for the pre- and post-completion regressions are obtained at the year end prior to and after the completion, respectively.

The figures in brackets indicate t-values (White errors), while a/b/c denote statistical significance at the 1%, 5% and 10%, respectively.

Table E.7. Idiosyncratic risk regressions of bank-insurance agency deals (completion)

All betas have been multiplied by 10^4

Panel A: Period before completion						
	1	**2**	**3**	**4**	**5**	**6**
Constant	5.790	5.760	5.590	1.900	2.340	1.230
	(4.40)[a]	(4.41)[a]	(3.51)[a]	(0.99)	(1.10)	(0.58)
Non-interest income share	-11.110	-11.030	-11.230			
	-(2.19)[b]	-(2.20)[b]	-(2.30)[b]			
Loans to total assets				2.590	3.540	3.320
				(0.93)	(1.30)	(1.22)
Non-performing loans to total assets			49.590			20.270
			(0.26)			(0.10)
Provision for loan losses to total assets	-205.230			-384.250		
	-(0.71)			-(1.24)		
Loan losses to total assets		-2.140			-2.930	
		-(1.20)			-(1.50)	
ROA	0.259	0.175	0.338	-0.199	-0.275	-0.119
	(0.30)	(0.21)	(0.39)	-(0.26)	-(0.37)	-(0.16)
Leverage	-0.038	-0.036	-0.035	-0.014	-0.010	-0.005
	-(0.96)	-(0.86)	-(0.97)	-(0.32)	-(0.22)	-(0.11)
Firm size	-0.677	-0.611	-0.713	-0.727	-0.699	-0.780
	-(1.78)[c]	-(1.61)	-(1.81)[c]	-(2.13)[b]	-(2.03)[b]	-(2.19)[b]
N	79	79	79	79	79	79
Adjusted R-squared	0.03	0.03	0.03	0.03	0.03	0.04
F-statistic	1.42	1.43	1.51	1.48	1.49	1.58
Panel B: Period after completion						
	1	**2**	**3**	**4**	**5**	**6**
Constant	4.400	4.410	3.420	1.860	1.060	0.229
	(4.77)[a]	(4.79)[a]	(1.92)[c]	(0.89)	(0.53)	(0.07)
Non-interest income share	-5.230	-5.320	-5.060			
	-(1.86)[c]	-(1.81)[c]	-(1.82)[c]			
Loans to total assets				2.130	3.070	2.570
				(0.84)	(1.16)	(0.95)
Non-performing loans to total assets			-100.120			-137.730
			-(0.60)			-(0.76)
Provision for loan losses to total assets	112.900			-66.350		
	(0.46)			-(0.33)		
Loan losses to total assets		1.510			0.023	
		(1.04)			(0.02)	
ROA	-0.029	0.021	-0.172	-0.101	-0.135	-0.113
	-(0.03)	(0.02)	-(0.18)	-(0.12)	-(0.17)	-(0.14)
Leverage	-0.012	-0.012	0.097	0.001	0.006	0.118
	-(0.24)	-(0.25)	(0.85)	(0.02)	(0.11)	(1.02)
Firm size	-0.577	-0.545	-0.529	-0.614	-0.608	-0.564
	-(3.20)[a]	-(2.86)[a]	-(2.83)[a]	-(3.80)[a]	-(3.84)[a]	-(3.41)[a]
N	74	74	73	74	74	73
Adjusted R-squared	0.13	0.13	0.13	0.13	0.13	0.14
F-statistic	3.22	3.22	3.19	3.14	3.16	3.38

The table presents OLS regressions of bank idiosyncratic risk, σ_{ε}^2, on measures of revenue and asset diversification, risk proxies, profitability and size variables, before and after the completion of bank-insurance agency deals. Panel A presents the results from the pre-completion regressions while Panel B presents the results from the post-completion regressions. The sample consists of 90 bancassurance deal announcements between 1990 and 2006. The independent variables are presented in the first column, while columns 1 to 6 contain the results from different regressions. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing three sets of regressions. In all models a number of bank-specific characteristics are employed as control variables (ROA, leverage, firm size). In cases where independent variables are correlated with one another auxiliary regressions are employed in order to make them orthogonal. Non-interest income share is the ratio of non-interest income to total operating income, ROA is the ratio of net income to total assets, Leverage is the ratio of total assets to common equity, and Firm size is the natural logarithm of total assets. The rest of the variables are self explanatory. All balance sheet and income statement variables for the pre- and post-completion regressions are obtained at the year end prior to and after the completion, respectively.

The figures in brackets indicate t-values (White errors), while a/b/c denote statistical significance at the 1%, 5% and 10%,

respectively.

Table E.8. Total risk regressions of bank-insurance agency deals (completion)

All betas have been multiplied by 10^4

Panel A: Period before completion						
	1	**2**	**3**	**4**	**5**	**6**
Constant	5.700	5.680	5.120	2.500	2.680	1.490
	(4.01)[a]	(4.04)[a]	(3.01)[a]	(1.23)	(1.21)	(0.70)
Non-interest income share	-9.520	-9.460	-9.810			
	-(1.74)[c]	-(1.74)[c]	-(1.91)[a]			
Loans to total assets				2.000	2.910	2.630
				(0.70)	(1.05)	(0.95)
Non-performing loans to total assets			174.070			148.760
			(0.91)			(0.76)
Provision for loan losses to total assets	-117.440			-268.020		
	-(0.39)			-(0.82)		
Loan losses to total assets		-1.430			-2.120	
		-(0.75)			-(1.01)	
ROA	0.643	0.581	0.741	0.254	0.191	0.349
	(0.70)	(0.64)	(0.80)	(0.30)	(0.23)	(0.42)
Leverage	-0.008	-0.007	-0.008	0.012	0.015	0.018
	-(0.17)	-(0.15)	-(0.19)	(0.23)	(0.28)	(0.40)
Firm size	-0.576	-0.522	-0.634	-0.633	-0.607	-0.690
	-(1.44)	-(1.30)	-(1.51)	-(1.78)[c]	-(1.69)[c]	-(1.85)[c]
N	79	79	79	79	79	79
Adjusted R-squared	0.01	0.01	0.01	0.00	0.00	0.01
F-statistic	0.91	0.90	1.15	0.93	0.93	1.19
Panel B: Period after completion						
	1	**2**	**3**	**4**	**5**	**6**
Constant	4.510	4.530	3.400	2.170	1.620	0.127
	(4.68)[a]	(4.82)[a]	(1.83)[c]	(0.97)	(0.76)	(0.04)
Non-interest income share	-3.650	-3.770	-3.480			
	-(1.21)	-(1.24)	-(1.16)			
Loans to total assets				2.170	2.920	2.630
				(0.81)	(1.06)	(0.90)
Non-performing loans to total assets			-48.050			-58.910
			-(0.27)			-(0.30)
Provision for loan losses to total assets	141.300			-0.042		
	(0.54)			(0.00)		
Loan losses to total assets		1.760			0.613	
		(1.18)			(0.65)	
ROA	0.261	0.324	0.318	0.218	0.210	0.293
	(0.28)	(0.35)	(0.29)	(0.24)	(0.24)	(0.33)
Leverage	0.018	0.018	0.122	0.029	0.035	0.139
	(0.35)	(0.35)	(1.01)	(0.53)	(0.65)	(1.13)
Firm size	-0.387	-0.357	-0.341	-0.415	-0.420	-0.366
	-(1.91)[c]	-(1.69)[c]	-(1.62)	-(2.30)[b]	-(2.38)[b]	-(2.00)[b]
N	74	74	73	74	74	73
Adjusted R-squared	0.02	0.03	0.03	0.02	0.03	0.04
F-statistic	1.35	1.46	1.41	1.35	1.47	1.58

The table presents OLS regressions of bank total risk, $\sigma^2 R_i$, on measures of revenue and asset diversification, risk proxies, profitability and size variables, before and after the completion of bank-insurance agency deals. Panel A presents the results from the pre-completion regressions while Panel B presents the results from the post-completion regressions. The sample consists of 90 bank-insurance agency deal announcements between 1990 and 2006. The independent variables are presented in the first column, while columns 1 to 6 contain the results from different regressions. In particular, columns 1 to 3 present the regressions where non-interest income share is used as a proxy for revenue diversification, while columns 4 to 6 present the regressions where the ratio of loans to total assets is used as a proxy for revenue diversification. Within the two subsets, the risk measures vary, producing three sets of regressions. In all models a number of bank-specific characteristics are employed as control variables (ROA, leverage, firm size). In cases where independent variables are correlated with one another auxiliary regressions are employed in order to make them orthogonal. Non-interest income share is the ratio of non-interest income to total operating income, ROA is the ratio of net income to total assets, Leverage is the ratio of total assets to common equity, and Firm size is the natural logarithm of total assets. The rest of the variables are self explanatory. All balance sheet and income statement variables for the pre- and post-completion regressions are obtained at the year end prior to and after the completion, respectively.

The figures in brackets indicate t-values (White errors), while a/b/c denote statistical significance at the 1%, 5% and 10%,

respectively.

Derivation of equation (6.1)

$$R_{i,t} = \alpha + \beta_{M_i} R_{M_{i,t}} + \varepsilon_{i,t}$$

taking the variance of the equation,

$$Var\left(R_i\right) = Var\left(\alpha + \beta_{M_i} R_{M_i} + \varepsilon_i\right)$$

therefore,

$$Var\left(R_i\right) = Var\left(\beta_{M_i} R_{M_i}\right) + Var\left(\varepsilon_i\right)$$

or,

$$\sigma^2_{R_i} = \beta^2_{M_i} \sigma^2_{R_{M_i}} + \sigma^2_{\varepsilon_i}$$

APPENDIX F

Table F.1. Bidders' excess returns due to bank-insurance mergers: Standard approach

		1	**2**	**3**	**4**
			Event windows for up to		
		3 days	5 days	7 days	9 days
	Pre-event window	[-1 0]	[-2 0]	[-3 0]	[-4 0]
1	CAAR	1.58%	1.44%	1.27%	1.27%
	t-test	(4.64) [a]	(3.45) [a]	(2.63) [a]	(2.37) [b]
	Post-event window	[0 +1]	[0 +2]	[0 +3]	[0 +4]
2	CAAR	1.63%	0.37%	0.42%	0.27%
	t-test	(4.77) [a]	(0.89)	(0.87)	(0.49)
	Event window	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
3	CAAR	1.45%	1.61%	1.44%	1.45%
	t-test	(6.02) [a]	(3.35) [a]	(2.68) [a]	(2.46) [b]
	Event window	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
4	CAAR	1.75%	0.36%	0.24%	0.09%
	t-test	(4.20) [a]	(0.67)	(0.37)	(0.12)

The sample used consists of 50 bancassurance deals announced between 1990 and 2006. The reported values are cumulative average abnormal returns (CAAR). Abnormal returns are calculated using standard event study methodology. As a proxy for market risk, the general market index is employed. The figures in brackets indicate t-values.
a/b/c denote significant CAAR at the 0.01/0.05/0.10 level (two-tailed test) for the pertinent event period.

Table F.2. Spillover effects to bank and insurance peers: Standard approach

	Panel A: Bank Peers	**1**	**2**	**3**	**4**
		Event windows for up to			
		3 days	5 days	7 days	9 days
	Pre-event window	[-1 0]	[-2 0]	[-3 0]	[-4 0]
1	CAAR	0.33%	0.53%	0.45%	0.53%
	t-test	(1.53)	(2.05) [b]	(1.48)	(1.58)
	Post-event window	[0 +1]	[0 +2]	[0 +3]	[0 +4]
2	CAAR	0.41%	0.72%	1.01%	0.78%
	t-test	(1.91) [c]	(2.78) [a]	(3.37) [a]	(2.31) [b]
	Event window	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
3	CAAR	0.36%	0.58%	0.49%	0.58%
	t-test	(2.41) [b]	(1.92) [c]	(1.46)	(1.56)
	Event window	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
4	CAAR	0.37%	0.89%	1.10%	0.95%
	t-test	(1.42)	(2.66) [a]	(2.76) [a]	(2.10) [b]

	Panel B: Insurance Peers				
		Event windows for up to			
		3 days	5 days	7 days	9 days
	Pre-event window	[-1 0]	[-2 0]	[-3 0]	[-4 0]
1	CAAR	0.49%	0.80%	0.65%	0.46%
	t-test	(1.73) [c]	(2.29) [b]	(1.61)	(1.02)
	Post-event window	[0 +1]	[0 +2]	[0 +3]	[0 +4]
2	CAAR	0.47%	0.35%	0.76%	1.45%
	t-test	(1.65) [c]	(0.99)	(1.90) [c]	(3.24) [a]
	Event window	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
3	CAAR	0.30%	0.97%	0.82%	0.63%
	t-test	(1.48)	(2.41) [b]	(1.83) [c]	(1.28)
	Event window	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
4	CAAR	0.66%	0.84%	1.11%	1.61%
	t-test	(1.91) [c]	(1.88) [c]	(2.10) [b]	(2.68) [a]

The sample consists of 40 bank and 33 insurance peer portfolios pertinent to the bank-insurance announcements. The reported values are cumulative average abnormal returns (CAAR). Abnormal returns are calculated using standard event study methodology. As a proxy for market risk, the general market index is employed. The figures in brackets indicate t-values.

a/b/c denote significant CAAR at the 0.01/0.05/0.10 level (two-tailed test) for the pertinent event period.

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