Cross-Industry Product Diversification and Contagion in Risk and Return: The Case of Bank-Insurance Takeovers[1]

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ABSTRACT

We investigate the impact of domestic/international bancassurance deals on the risk-return profiles of announcing and non-announcing banks and insurers within a GARCH model. Bank-insurance deals produce intra- and inter-industry contagion in both risk and return, with larger deals producing greater contagion. Bidder banks and peers experience positive abnormal returns, with the effects on insurer peers being stronger than those on bank peers. Insurance-bank deals produce insignificant excess returns for bidder and peer insurers and positive valuations for peer banks. Following the deal, the bank bidders' idiosyncratic (systematic) risk falls (increases), while insurance bidders exhibit a lower systematic risk and maintain their idiosyncratic risk.

Keywords: Cross-Industry, Bancassurance, Takeovers, Diversification, Spillovers, GARCH
JEL Codes: *G34, G21, G22, G14, G15, C5*

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INTRODUCTION

A widespread mode of corporate restructuring within the financial intermediation industry is the bank-insurance interface, or bancassurance. Arguments in favor of this structure include diversification benefits, scale and scope economies, efficiency gains, strength to withstand competition, and managerial discipline through takeover threats. Skeptics argue, however, that the bancassurance structure is vulnerable due to conflicts of interest/culture, allocative distortions, regulatory arbitrage, subsidization of non-bank affiliates via the bank safety net (e.g., bailouts), affiliation risk (bank runs due to non-bank affiliate problems), and the creation of financial and political super powers (Flannery, 1999; Herring and Santomero, 1990; Santomero and Eckles, 2000). A main concern among regulators is whether the risk inherent in these conglomerates has a greater potential to spill over to other financial firms and, ultimately, to the real economy (Parsons and Mutenga, 2009), thus, causing a systemic failure.

These concerns resurfaced during the 2007-2009 crisis when a number of financial intermediaries (FIs) failed or were bailed out at the expense of the taxpayers. Contrary to the banking sector, the insurance industry came through the crisis relatively unscathed, mainly due to the ability of insurers to generate new capital through external funds and dividend cuts (Berry-Stolze et al., 2014). In the aftermath of the crisis, the issue of effective regulation and/or supervision of systemically important FIs (SIFIs), and the need to minimize the moral hazard effects associated with bailouts became the center of the regulatory debate. Moreover, the issue of 'narrow banking' i.e. whether the range of permissible activities of FIs should be restricted in order to limit systemic risk, was revived as a major regulatory concern (Boot and Thakor, 2009; Morrison, 2009) and also gained ground in the academic literature (Chen et al., 2014; Cummins and Weiss, 2014; De Jonghe, 2010; Ibragimov et al., 2011; Wagner, 2010). As far as insurers are concerned, the regulatory debate is likely to focus on strengthening the mechanisms for insurer supervision (Cummins and Weiss, 2014) and preventing the extension of the government guarantees beyond the banking sector (Harrington, 2009).

Regardless of the regulatory process, in practice, banks and insurers have witnessed a considerable level of product convergence. The overlap in the two sectors is especially apparent in markets where products offered by banks, such as credit-default swaps, closely resemble a casualty insurance policy; albeit without either an insurable-interest requirement or a role for an insurance adjuster (Saunders and Cornett, 2008). These similarities make the bank-insurer interface a natural process, and in a sense, a 'fait accompli' in spite of the regulatory concerns.

A thorny issue concerning policy makers is whether product diversification by FIs affects their risk-return profiles and/or those of peers operating in the same sector. Despite the importance of this subject, the academic literature has failed to shed light on it.[2] Thus, it is important to examine how domestic and international bank-insurance mergers and acquisitions (M&As) will affect the risk and returns of the acquiring firms and their peers and what factors determine the magnitudes of the effects. These matters will be investigated in the current study.

The paper contributes to the literature in five fronts. First, we investigate the effects of bancassurance deals on the acquirers' risk-return profile. We employ all publicly available domestic and cross-border acquisitions, satisfying our selection criteria, over an extended time period. Deal-size and the timing of deals before and after the financial crisis are also taken into account to distinguish any differential impact on acquirers and their peers. Second, we broaden the analysis to investigate the respective spillover effects on both bank and insurer peers, in order to determine whether the wealth effects of such M&As are limited to the firms directly involved,

[2] See section 2 for a pertinent discussion of the existing literature.

or they spillover to peer firms as well. Third, we examine the changes in total risk and its systematic and unsystematic components for the acquiring firms, as well as associated spillovers to their peers, using a risk decomposition approach. Fourth, we estimate the cross-sectional determinants of bidder abnormal returns around the announcement of bank-insurance partnerships, in order to identify the factors contributing to their abnormal performance. Fifth, we examine the wealth/risk effects of bancassurance corporate restructurings within a Generalized Auto-Regressive Conditionally Heteroskedastic (GARCH) model. This specification accounts for volatility clustering, nests the traditional asset pricing models and measures the shock persistence on return volatility. The above issues have not been addressed by studies focusing on wealth or risk effects of bank-insurance ventures.

Our analysis is motivated by an economic as well as an academic perspective. Bancassurance ventures may increase or destroy value, with the net effect being observable in the returns and risks of the involved firms. Similarly, peer firms may be positively (negatively) affected if a deal favorably (adversely) alters their competitive position and/or the standing of their industry. This can translate into positive (negative) returns and/or a reduction (increase) in their risk. Moreover, the direction of the effect on peers and its magnitude can be seen as an important indicator of the interdependencies in the industry and is of interest to regulators seeking to minimize systemic risk. The effects of M&As on peer firms have been the focus of some earlier studies (Carow, 2001a; Eckbo, 1985). Yet, these studies look into the reaction of peers to a single event – with the exception of Eckbo (1985); while no study looks into risk spillover effects on peers. The paper proceeds as follows. Section 2 reviews the literature, Section 3 describes the methods, Section 4 reports the findings and Section 5 concludes.

RELEVANT LITERATURE

A number of studies have investigated insurance/bank product diversification through M&As but offer inconclusive results. For example, Houston and Ryngaert (1994) find that bank mergers result in transfer of wealth from bidders to targets, while Houston et al. (2001) report gains for the combined entities. Delong (2001) shows that focusing mergers create value, while diversifying mergers do not. Studies that examine M&A in the insurance industry generally find value-enhancing effects. Cummins and Xie (2008) find that acquirers in the property and liability sector are more revenue-efficient than non-acquirers, and that targets exhibit greater cost and allocative efficiencies than non-targets. Similarly, Cummins et al. (1999) conclude that M&A have increased the efficiency of the acquired firms and benefited the life insurance industry.

In the international context, Acharya et al. (2006) find that diversification of bank loans across sectors and industries, does neither necessarily improve return nor reduce risk, perhaps because diversification of bank products reduces the effectiveness of bank monitoring and information gathering functions. Berry-Stolze et al. (2013) show that the effect of product diversification on an insurer' value varies with the stage of capital market development. Along similar lines, Berger et al. (2000) show that market imperfection in the insurance sector allows both diversifiers and specialists to be competitively viable in the long-run.

Of greater interest has been the expansion of banks into insurance activities (Kane, 1996; Yildirim et al., 2006; Elyasiani et al., 2012). A number of arguments can be made in favor of a more integrated financial services industry. First, Saunders and Walter (1994) and Vander Vennet (2002) claim that conglomerates are more cost efficient because they benefit from cost, revenue and operational synergies. Second, portfolio theory posits that diversified firms can enjoy lower earnings volatility through 'coinsurance effect' (Boot and Schmeits, 2000). Third, large diversified firms benefit from superior resource allocation through effective internal markets (Stein, 1997). Finally, financial conglomerates are more flexible when they encounter changing economic conditions, due to their diversity (Herring and Santomero, 1990).

Several counter arguments can be offered. Black et al. (1978) argue that conglomeration of banking and non-banking enterprises results in risk proliferation and increased social costs.[3] In addition, diversification may reduce firm-specific risk, but at the expense of adding to systemic risk due to the increased interconnectedness among FIs (Brunnermeir et al., 2012; De Jonghe, 2010). Aggarwal and Samwick (2003) propose that managers tend to diversify their firms in order to capture private benefits. When geographic diversification is considered, factors such as distance and organizational complexity intensify informational asymmetries between the headquarters and the affiliates, heighten agency problems, harm performance, and increase risk (Berger et al., 2005; Acharya et al., 2006; Baele et al., 2007; Deng and Elyasiani, 2008).[4]

Empirical evidence on the effects of bank diversification across industry lines is diverse. Studies in this area can be divided into several strands of literature. The first strand examines the relationship between revenue diversification and profitability and/or risk. DeYoung and Roland (2001) find that diversification into fee-based activities is associated with higher volatility of bank revenues. Similarly, Stiroh (2004) finds that increased reliance on non-interest income leads to higher risk and lower risk-adjusted profits, leading him to conclude that convergence across FIs increases the correlations among the product lines of the FIs. This finding is supported by Stiroh and Rumble (2006) who report that the benefits of diversification are offset by increased exposure in risky activities, and Brunnermeir et al. (2012) and Vallascas and Keasey (2012) who find a positive relationship between non-interest income and systemic risk. In the

[3] Herring and Santomero (1990) cite also the wider market impact of conglomerate failures, greater cost of supervision, and the higher moral hazard due to access of non-banks to the safety net. Santomero and Eckles (2000) add the social costs related to reduced competition, reduced consumer choices, and conflicts of interest.
[4] For a review of the pre- and post-2000 M&A literature, see Berger et al. (1999) and Amel et al. (2004) and DeYoung et al. (2009), respectively.

insurance industry, Cummins and Weiss (2014) find that diversification into noncore activities, such as financial guarantees and derivatives trading, may heighten systemic risk.

The second strand focuses on the risk effects of M&As between banks and non-banks and produces mixed results. For example, Santomero and Chung (1992) and Boyd et al. (1993) find evidence that bank expansion into the insurance business is risk reducing. In contrast, Lown et al. (2000) show that M&As between bank holding companies (BHCs) and securities and property-casualty firms raise BHCs' risk, and Vallascas and Hagendorff (2011) show that low-risk European banks diversifying into other financial activities experience an increase in default risk. The third strand documents a positive stock market reaction and a reduction in the riskiness of FIs in response to the passage of the Financial Modernization Act (FSMA, 1999) (Yildirim et al., 2006). Similarly, some studies report positive market reactions around court rulings allowing U.S. banks to sell annuities (Carow, 2001b) and in response to the Citicorp-Travelers merger (Carow, 2001a). In a survey study, Carow and Kane (2002) conclude that the relaxation of long-standing geographic/product line restrictions on the U.S. financial firms may have redistributed, rather than created, value; while Dontis-Charitos et al. (2011) and Fields et al. (2007a,b) find positive abnormal returns for bank-insurance announcements and Hagendorff et al. (2008) show that banks diversifying into other financial activities create value for shareholders under weak investor protection regimes in Europe.

DATA AND METHODOLOGY

Data

The M&A database of Thomson One Banker is used to retrieve information on announcements of completed deals between banks and insurers within and across the borders of the acquirer's country, during 1991-2012. Our sample draws data from the U.S., Europe and other countries available on the database. The criteria employed to identify the deals are that the bidder is a publicly-traded bank or insurance company, the value of the deal is disclosed, there are no conflicting announcements around the event date, and the deal does not entail rescue motivations. Given these criteria, after excluding the cases with incomplete data, 82 diversifying deals are found on the database. These comprise 66 bank acquisitions of insurers (Bank-Insurance) and 16 insurer acquisitions of banks (Insurance-Bank).[5,6] Table 1 provides information about the sample of bancassurance deals.

TABLE 1

We also examine the peers of the bidders. Data for identification of the peer groups are extracted from the Thomson One Banker's deal tear sheets. We construct peer groups for each deal in three steps. First, we obtain the name of the acquirer, the deal's date, and information on the home market index where the bidder is traded. Second, we use Bloomberg and/or Thomson Datastream and/or local exchanges to track the historical constituent lists of each home index. Third, using Bloomberg's and/or Datastream's company classification systems, two peer groups are constructed for every bidder; bank peers and insurer peers.[7] Daily equity prices for bidders and their peers covering 250 days before and 250 after each announcement are collected from

[5] Our initial search based on the above criteria yields 72 bank-insurance deals and 20 insurance-bank deals, giving a total of 92 deals. We drop 6 bank-insurance and 4 insurance-bank deals due to data unavailability and/or inconsistencies in stock return patterns. The sample of insurance targets includes 37 life insurers, 15 property and casualty (P/C) insurers, 9 insurance agents/brokers, 3 health and medical insurers, 1 life insurance-reinsurance carrier, and 1 P/C insurance-reinsurance carrier. Bank targets include 15 commercial banks and 1 savings and loans.

[6] Thomson one Banker provides the SIC codes of target firms but additional checks uncovered some discrepancies with classifications reported on other Databases (Datastream, Bloomberg, Compustat). To ensure the accuracy of information with respect to the type of insurance/bank targets, we use a combination of the codes provided by the databases and also, when available, cross reference these with historical information on activities from the companies' websites. The following SIC/NAICS codes were used, respectively: Life Insurers (6311/524113); P/C insurers (6331/524126); Insurance brokers (6411/524210); Health and medical insurers (6321/524114); National commercial banks (6021/522110); Savings and loans (6035/522120).

[7] For example, to construct the peer groups for the Citicorp-Travelers merger (announced 6 April 1998), we use the S&P500 constituent list of 1998. Then, we use the company classification system of Bloomberg and/or Thomson Datastream in order to identify and isolate the banks and insurance companies listed on the S&P500 in 1998. Note that we exclude the associated bidder (bank/insurance) and target (insurance/bank) firms from each peer group.

Datastream.[8] Logarithmic stock returns are calculated for all bidders and for the four portfolios consisting of bank and insurer peers (two for bank bidders and two for insurance bidders).[9] The final peer samples comprise 52 (9) bank and 43 (9) insurer peer portfolios for bank-insurance (insurance-bank) deals. The smaller sample for the peer portfolios is due to the unavailability of constituent lists and/or equity prices during a particular period – different for each country where the bidder is located. Finally, accounting variables are collected from the Thomson Financial database and deal-specific characteristics are collected from Thomson One Banker.

Methodological issues

Brockett et al. (1999) have shown that application of the traditional event study methodology may potentially distort findings if GARCH effects are not accounted for when appropriate. Hence, we employ a GARCH event study framework to investigate excess returns due to bank-insurance deals for the acquiring firms and their peers.[10] Abnormal returns are calculated as the difference between observed returns and those predicted by the single index market model. The event date is the deal announcement date. An estimation period of 210 days (-250 to -41 days prior to the event, i.e. day zero) is used to obtain the coefficient estimates for calculation of abnormal returns during the 81 trading days of the reference period (-40 to +40 days) surrounding the event date.[11]

[8] Stock prices are adjusted for dividends and splits, market closures and public holidays.
[9] In order to verify that our sample of deals is not contaminated by conflicting announcements such as other deals, profit reports, dividend announcements etc., we use the Factiva news database to retrieve and assess the news related to the bidder six days around the announcement. Peer portfolios are constructed using equally weighted returns of the peers in each group. Returns of acquiring and target firms are excluded from the associated peer portfolios.
[10] Carson et al. (2008), Cheng et al. (2010) and Cheng et al. (2011) also apply GARCH to the insurance industry. We limit the analysis of wealth effects to acquiring firms because not all target firms in our sample are publicly traded, and, thus, examining target and combined wealth effects would lead to a significant reduction in the number of deals considered. Moreover, in reality the return of the actual combined firm will depend on a variety of factors (Staikouras, 2006) that is impossible to determine ex-ante.
[11] As a robustness check we re-estimate all models using a smaller event window of -20 to +20 days surrounding the event date. The results are qualitatively similar to those reported in Tables 2, 3, 4, 5 and 6 (available upon request).

Our tests are conducted in four steps. In steps 1 and 2, a GARCH model, described by Eqs. (1)-(2), is used to investigate the effect of the takeover events on the acquirer and peer firms. The choice of this model is important because equity returns are characterized by volatility clustering (Bollerslev, 1986). In addition, this model considers both the first and second moments of the stock return distribution, accounts for conditional heteroscedasticity, and allows for the strength of the persistence of shocks to be measured. This is critical because ignoring the time dependence in stock returns leads to inefficient parameter estimates and inconsistent test statistics (Engle, 1982; Bollerslev, 1986, 1987). During the reference period (-40, +40), both abnormal returns and conditional variances are forecasted sequentially on a daily basis.

$$R_t = c + \beta R_{mt} + u_t \qquad u_t \sim N(0, h_t) \qquad (1)$$
$$h_t = \mu + \theta(L)\varepsilon_t^2 + \delta(L)h_t \qquad (2)$$

In this specification, R_t is the return on a bank stock or a 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 $\mu > 0$ 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*), described by Eq. (3). The average abnormal return (AAR) and the cumulative average abnormal return (CAAR), over the reference window, are calculated using Eqs. (4)-(5). Following Savickas (2003), the cross-sectional test statistic for testing the significance of the GARCH-based average abnormal returns is formulated as in Eq. (6):

$$AR_t = R_t - \hat{c} - \hat{\beta}\, R_{mt} \qquad (3)$$
$$AAR_t = \sum_{i=1}^{N} \frac{AR_{it}}{N} \qquad (4)$$
$$CAAR = \sum_{i=-t}^{t} AAR_t \qquad (5)$$

$$T = \sum_{i=1}^{N} \frac{S_{it}}{N} \Bigg/ \sqrt{\frac{1}{N(N-1)} \sum_{i=1}^{N} \left(S_{it} - \sum_{j=1}^{N} \frac{S_{jt}}{N} \right)^2} \qquad (6)$$

where, $S_{it} = \frac{AR_{it}}{\sqrt{\hat{h}_t}}$ is the standardized abnormal return of bank/peer portfolio *i* at time *t*, $\hat{h}_{it}$ is the respective conditional variance from Eq. (2) and *N* is the number of firms.

In the third step, we assess the determinants of bidders' abnormal returns around the announcement of the mergers. This involves a cross-sectional regression of the abnormal returns on accounting and deal-specific variables. The model is described by Eq. (7), where *X* denotes a vector of predetermined factors (see section 4.3); *Φ* is the vector of parameters to be estimated; and ε is the error term. The final step provides a decomposition of the bidders and peers' total risk into systematic and unsystematic components (Eq. 8) based on our model (Eqs. 1-2) and investigates possible changes in each component between pre- and post-deal periods.

$$AR_i = X\Phi + \varepsilon_i \qquad (7)$$

$$TR = \beta^2 + H_m + H_u \qquad (8)$$

Eq. (8) is obtained as follows: *Hu* is the conditional variance of the firm over time and across deals representing the aggregate idiosyncratic risk exposure of the bidder/peer portfolio. That is, $Hu = \sum_{i=1}^{N} \overline{h_i}/N$ where $\overline{h_i} = \sum_{t=T_1}^{T_2} h_{it}/(T_2 - T_1 + 1)$ is the average idiosyncratic risk for deal *i* over the event window (T_2-T_1). Similarly, $\beta^2\, Hm = \sum_{i=1}^{N} \beta_i^2 \overline{h_{mi}}/N$ where $\overline{h_{mi}} = \sum_{t=T_1}^{T_2} h_{mit}/(T_2 - T_1 + 1)$ with h_{mit} being the conditional variance of the corresponding market index, $\overline{h_{mi}}$ is the average of these market indices over the reference period, and *Hm* is the average systematic risk of the bidder/peer portfolio. The risk decomposition is performed for the pre- deal (-250 -1) and the post-deal (+1 +250) periods separately.[12]

[12] A potential concern could be our definition of the pre- and post-deal periods. It could be argued that excluding only the event day may lead to a large proportion of the pre- and/or post-event risk being driven by the uncertainty

EMPIRICAL FINDINGS

Wealth effects of bank-insurance deals on bank bidders

Extant studies focus on a single bank-insurance merger event (Carow, 2001a), strategic alliances within a country (Chiou and White, 2005), or M&As within the banking industry, rather than considering the broader financial services industry (Delong, 2001). Even the most recent studies investigate the diversification benefits of BHCs in the U.S. (Stiroh and Rumble, 2006) or Europe (Baele et al., 2007) ignoring the cross border ventures. A few studies do examine the bank-insurance interface (Dontis-Charitos et al., 2011; Fields et al., 2007a, b) but fail to account for volatility clustering, effects on peers, and the risk decomposition analysis.

Table 2 presents the results for the acquiring banks (bank-insurance deals, columns 1-4) and acquiring insurance companies (insurance-bank deals, columns 5-8). The reported wealth effects are the cumulative average abnormal returns (CAARs) over different time horizons, ranging from the event window [0 0] to a nine-day window [-4 +4]. Different time period combinations, within this latter window, are also explored bringing the number of event windows examined to sixteen. Looking at the full period results for bank-insurance deals (Panel A) we observe that the CAARs are positive and highly significant for up to three cumulative days around the event date (column 1). As the window widens, however, both the magnitude and the significance level of the CAARs weaken (columns 2, 3 and 4), indicating a quick dissipation of the announcement effects. Comparing the figures in the pre-event [-T 0] and post-event [0 +T] windows (rows 1 and 2, respectively) reveals that the former do show significant effects, yet their strength declines when moving away from the event date. On the contrary, the post-event windows fail to produce any significant results, apart from the [0 +1] window.

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of the event itself. To address this issue we re-estimate all models excluding 21 (-10 +10) days around the event. The results are qualitatively similar to those reported in Tables 8, 9, and 10 (available upon request).

TABLE 2

In general, the announcement effects occur before and at the time of the merger. CAARs are significant in windows extending to the period prior to the event, indicating the presence of information leaks, but do not last beyond the post-event date, providing some support for market efficiency. The pattern of CAARs can be further explained when the individual abnormal returns (AARs) around the event day are examined (not reported). Pre-event, there is no significant AAR on any of the days leading to day 0. Post-event, there is a negative and significant AAR (-1.05%) on day 2; this post-event overall profit taking is also the reason for the dissipation of significant CAARs beyond the [0 +1] window. The separation of the sample into pre-2007 and post-2007 deals (Panels B and C), reveals that any positive and significant wealth effects are confined to the pre-2007 period, with post-2007 bank-insurance deals producing insignificant returns. Our pre-2007 results are indirectly comparable with studies examining the reactions of banks/insurers to court rulings allowing banks to enter insurance brokerage and/or underwriting (Carow, 2001b), the passage of the FSMA (1999) (Yildirim et al., 2006) and the Citicorp-Travelers merger (Carow, 2001a).[13] It appears that the financial crisis changed investor perceptions regarding bank diversification into insurance. Specifically, the post-crisis M&As may have been perceived by investors as adding to systemic risk (Brunnermeir et al., 2012; De Jonghe, 2010) and/or as steps towards survival, with banks consolidating in order to increase their chances of gaining access to emergency government funding programs.[14]

In contrast to bank-insurance deals, when insurers acquire banks, the announcements fail to trigger significant market reactions. This could be because the majority of our insurance-led deals occurred after 1999, whereas bank-driven deals were observed since 1991. The market

[13] These studies focus on the impact of isolated events in the bancassurance market, while we examine a large cross-section of international deals, hence, the term ‘indirectly comparable’.

[14] Examples include the U.S. Troubled Assets Relief Program (TARP, 2008) and the European Financial Stability Facility (EFSF, 2010), which was replaced by the European Stability Mechanism (ESM, 2012).

may expect that banks, having established bancassurance structures for a far longer period and to a larger scale, than insurers, possess a comparative advantage in operating these structures. Alternatively, the insignificant results could be due to the small sample size of such deals.

Wealth spillover effects on peer institutions

This section examines the effects of the deals in our sample on peer banks and insurers, explores the presence of any intra- and inter-industry spillover effects and identifies their nature as competitive versus contagion. These issues have been investigated in the literature (Aharony and Swary, 1983; 1996; Brewer and Jackson, 2002; Elyasiani et al., 2007), but not in the context of the bank-insurance interface. Moreover, our assessment of the effects on peer firms is based on actual deals, rather than regulatory reforms (e.g., FSMA 1999) or single events such as the Citicorp-Traveler merger (1998), used in prior studies. The contagion (competitive) hypothesis of intra- or inter-industry effects is supported when the stocks of peers show reactions in the same (opposite) direction as the bidders. We expect competitive scenarios to hold for peers in the same sector as bidders due to increased competition from the latter firms. On the contrary, we anticipate different-sector peers to show signs of contagion, due to expectations that they might become targets of banks in future acquisitions. Spillover effects can also be manifested as a combination of contagion and competitive effects as some peers may exhibit competitive effects, while others show contagion effects. The peer portfolio excess returns, reported in Tables 3 and 4, reveal the net spillover effect; that is, if contagion effects dominate competitive effects, the net effect will be of contagion nature and vice versa.

TABLES 3 & 4

Tables 3 and 4 present the wealth spillover effects due to bank-insurance and insurance-bank deals, respectively. Both tables follow the same structure as in Table 2. The results in

Table 3 show that on the event date [0 0] both bank peers and insurer peers experienced significant excess returns of 0.45% and 0.44%, respectively (panel A, columns 1 and 5, row 3). For the rest of the time windows, bank peers generally show insignificant excess returns – the only exception is the positive excess return in the [0 +1] window. The banking industry seems to quickly absorb the shocks due to the M&A event, as the significance of excess returns fades away one day after the event. The separation of the sample into pre- and post-2007 deals (panels B and C) reveals a similar pattern. Peer insurer firms display quite a different response pattern to the bank-insurance deals. Their abnormal returns are greater in magnitude, most are significant at the 5% level, and their significance extends up to nine days around the event (panel A, row 4). In addition, the magnitudes of the excess returns on insurer peers are often larger than those of the bank peers, particularly in the days surrounding the bancassurance event (column 1).

Overall, the pattern of the effects indicates that the impact of bank-insurance deals on insurer-peers is stronger and also longer lasting than those on the banking rivals. Given that acquired insurers are generally small relative to the acquiring banks, the greater impact on the insurers is reasonable. Specifically, since peer insurers are the likely targets of future takeovers by BHCs, they exhibit contagion effects. Peer banks are less likely to be acquired by insurers and may, therefore, be susceptible to increased competition from their larger and more diversified counterparts. Our overall findings are somewhat similar to Carow (2001a) who reports a positive reaction by large banks, brokerage firms and insurers to the Citicorp-Travelers merger.[15]

The spillover effects due to insurance-bank deals are presented in Table 4. The results here reveal a different pattern than that observed for bank-insurance deals. The full period results

[15] We should be careful, however, in making direct comparisons because a) the current study considers the average spillover effects of a large cross-section of domestic and international bank-insurance mergers, while the former study measures 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 this study.

show no evidence of either contagion or competitive effects for bank and insurer peers. Interestingly, when pre-2007 and post-2007 deals are considered separately, bank peers exhibit negative excess returns in the pre-2007 period (panel B, column 1, row 3) and positive excess returns in the post-2007 period (panel C, columns 1 and 2, row 3). A possible explanation for the pre-2007 result may be found in the theory of contestable markets (Baumol, 1982), whereas the long-term profits of incumbent banks would be reduced when insurers enter the industry. In the post-2007 period, investors perhaps viewed the entrance of insurers into the banking business as a means of injecting the much needed funding to banks because insurers fared much better than banks during the crisis (Harrington, 2009). This led to a positive reaction. Similar to the results presented in Table 2, insurer peers do not exhibit any signs of net spillover effects, indicating that markets were indifferent to such combinations. However, these findings should be interpreted with caution as the sample size is small.

Wealth effects and deal size

The size of the deal is often an important factor in acquisitions. Large deals are followed by many analysts due to their potential impact on the economy/industry. These deals might also bring about greater synergies in the form of scale and scope economies (Dontis-Charitos et al., 2011) and/or increase market power and political influence as well as providing greater access to the safety net (Kane, 2000). Large deals can also destroy value if managerial hubris leads to overbidding for targets (DeYoung et al., 2009). As a result of the above, larger deals are expected to generate stronger spill-over effects. Dividing our sample into large and small deals (above and below the median deal size. reveals some interesting results, which are reported in Tables 5 (bank-insurance deals) and 6 (insurance-bank deals).

TABLES 5 & 6

Bidders in large bank-insurance deals experience abnormal returns across the majority of the event windows while bidders in the small deals do not (Table 5). Our findings show that indeed in all cases, the abnormal returns in the large deals are higher than those from the small deals. These findings are in line with expectations for greater synergies in large firms, as well as their potential for increased market and political power and greater access to the safety net (Kane, 2000). A similar pattern is observed for both bank and insurer peers. Specifically, large deals generate contagion effects to bank peers while small deals do not. The contagion effect on insurer peers is also much stronger in larger deals. Unlike bank-insurance deals, separating the insurance-bank deals into large and small indicates that the market is indifferent to the size of insurance-bank combinations (Table 6).

Determinants of bancassurance abnormal returns

We argue that abnormal returns (AR_{it}) of bidder i at time (event-window) t can be explained by a set of accounting, deal-specific and geographical variables, as described below:

$$AR_{it} = \alpha + \varphi_1(OBSA_i) + \varphi_2(LEV_i) + \varphi_3(ROE_i) + \varphi_4(RDS_i) + \varphi_5(M/B_i) + \varphi_6(DV\text{-}DOM_i) + \varphi_7(DV\text{-}U.S._i) + \varphi_8(DV\text{-}OFF_i) + \varphi_9(DV\text{-}SOUGHT_i) + \varphi_{10}(DIST) + \varepsilon_{it} \qquad (9)$$

Our choice of determinants of abnormal returns is influenced by a combination of theory and empirical evidence. The accounting variables employed include the following: First, we use the ratio of non-interest income to total operating income as a measure of functional diversification. The greater the ratio of non-interest income (or, off balance sheet activities, OBSA), the more diversified the bank is in terms of income generated through non-traditional banking activities.[16] Existing empirical evidence on the relationship between diversification and bank returns is mixed (Baele et al., 2007; Mercieca et al., 2007; Stiroh, 2006; Stiroh and Rumble,

[16] This measure captures income generated via a number of activities such as underwriting and selling insurance policies and securities, selling mutual funds, providing payments and cash-related services and securitizing assets.

2006). Second, we use leverage (LEV), measured by (assets/equity), as an indicator of risk. If investors anticipate the formation of bancassurance ventures to reduce bank risk, riskier (more leveraged) bidders should exhibit higher abnormal returns and vice versa. Third, we use return on equity (ROE) and return on assets (ROA) as proxies for profitability and the market to book (M/B) ratio as a measure of growth opportunities and lack of transparency. Previous studies find a positive coefficient on profitability (Fields et al., 2007a) yet fail to account for the effect of leverage on profitability. In addition, the relative deal size (RDS), measured by the ratio (deal-value/bidder-market-value), is used as an indicator of potential scale economies, greater internal markets, market power, political clout and access to the safety net.

The deal-specific factors include dummy variables to account for domestic versus cross border deals (DV-DOM = 1 for domestic deals, 0 otherwise); U.S. versus non-U.S. bidders (DV-U.S. = 1 for U.S.-based bidders, 0 otherwise); the consideration offered, which is the medium of payment used by the bidder (DV-OFFER = 1 if cash, 0 if stocks); consideration sought, which is what the bidder buys from the target (DV-SOUGHT = 1 for stock, 0 if assets); and the distancebetween acquirer and target (DIST) used as a measure of geographic diversification. [17,18] The parameter estimates from the model are given in Table 7. Panel A presents the results for the full period. Panel B results distinguish the pre- and post-2007 periods using interaction terms.

TABLE 7

Looking at the full period results (Panel A), leverage (LEV), relative deal size (RDS) and U.S. location (DV-U.S.) of the acquirer show positive effects, whereas all other coefficients are

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[17] The distance between acquirer and target is the distance between their headquarters, using the standard Euclidean approach. This 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. The DIST variable is expressed as the natural logarithm of the distance.

[18] Dontis-Charitos et al. (2011) find an insignificant relationship between domestic deals and abnormal returns, whereas, Fields et al. (2007a) report a positive relationship between a cross border dummy and abnormal returns. We expect a positive sign on DV-U.S. and an insignificant coefficient on DV-OFFER. No prior studies control for the consideration sought and/or the distance between acquirer and target.

insignificant. However, when the effects for the pre- and post-2007 deals are distinguished (Panel B), some interesting variations in the pattern of determinants of excess returns emerge. Before the crisis, the degree of bidder's prior functional diversification (OBSA) exhibits a positive relation with abnormal returns. This is in contrast with Stiroh and Rumble (2006) who find that increased reliance on non-interest income is unassociated with higher returns. Perhaps, the market anticipates that prior bidder experience in diversification will have a positive effect on the post-merger integration of the banking and insurance activities and, will ultimately enhance synergies. This pattern changes after the inception of the crisis, with higher OBSA triggering lower valuations. In line with our event study findings, the crisis may have changed the way investors perceive bank ventures into the insurance business.

This changing pattern is observed for several variables in our model. For example, before 2007, greater leverage (LEV) leads to higher abnormal returns. One interpretation of this result is that higher leverage increases the ROE for a given ROA, which in turn increases the appeal of the firms to investors and, thus, raises the stock price.[19] Another interpretation is that investors expected more leveraged (riskier) firms to benefit to a greater extent from the risk diversification associated with bancassurance, and, therefore, attached higher valuations to these firms before the crisis. These two interpretations are not mutually exclusive. Following the inception of the crisis, results show that investors are wary of leveraged banks diversifying into insurance (higher leverage leads to lower excess returns) as this could be expected to increase their risk. This is consistent with our result on OBSA. Similarly, ROE is negative and significant for pre-2007, and turns positive for post-2007 deals. Perhaps bidders with lower profitability were expected to experience greater benefits from diversification due to improved allocative efficiency and the greater potential to improve their performance from a low profitability level. Yet, this

[19] It is notable that the ROE is the product of the ROA and leverage. Hence, it reflects the impacts of both.

expectation changed in the aftermath of the crisis when investors were wary of unprofitable firms because of their greater chances of default.

Another interesting result is observed in the relative size of the deal (RDS). The RDS coefficient is positive for deals before 2007, something that may be attributed to expectations of greater synergies – due to the greater potential for economies of scale and scope, internal capital markets, market and political power and access to the safety net. In the post-2007 period, however, higher RDS leads to lower excess returns, indicating market concerns over the size of the combined firm. Growth opportunities (M/B) play a similar role to RDS and OBSA as they also provide the bidder with a greater chance for growth and profitability – hence the positive (but weak) relation between M/B and excess returns in the pre-2007 period. The sign of this variable also changes in the post-2007 period into negative. It seems that investors no longer expect banks with higher growth opportunities to benefit from diversification into insurance because of the overwhelming uncertainty prevailing in the market place. Overall, our post-2007 results on LEV, RDS and M/B are consistent with Brunnermeir et al. (2012) who find that higher leverage and size lead to higher systemic risk, while the effect of M/B is smaller.

Finally, looking at the coefficients on deal characteristics, the results vary across event windows examined (Panel B). First, the DV-DOM variable is positive and significant only in windows including the post-event days. Perhaps the market anticipates greater synergies/lesser problems in domestic integration (Delong, 2001). Second, the positive and significant DV-U.S. coefficient (confined to event day model, column 6) demonstrates that U.S. bidders experienced superior valuations compared to their non-U.S. counterparts. Third, the DV-SOUGHT coefficient is negative but weakly significant in one model (Column 7). This provides weak evidence that investors anticipated lower benefits from deals where banks bid for ownership of the insurance companies rather than deals where they simply bid for assets. In contrast, the market is indifferent to the consideration sought by the bidder. Finally, the positive and significant coefficient of distance (DIST) indicates that geographic diversification was a desirable characteristic for cross-product ventures such as bank-insurance.

Risk decomposition of the acquiring banks

Extant studies have produced mixed results as to whether bank-insurance formations produce diversification benefits and/or lead to lower risk (Lown et al., 2000; Mercieca et al., 2007). We argue that dynamics of capital markets may be too intricate to be fully captured by the existing models. Hence, we conduct our analysis within a more robust framework in order to shed new light on the matter. To this end, we employ a GARCH model to examine the risk effects of bank-insurance and insurance-bank deal announcements. Using this framework, we decompose the risk of the bidder firms into systematic and unsystematic components in both the pre- and post-announcement periods. Studying the risk effects, in addition to the wealth effects, is particularly important because there is a trade-off between risk and return and, hence, looking at the return effects in isolation would provide only a partial and, hence, misleading, picture. We decompose the total risk according to Equation (8) and then contrast the pre- and post-merger values of the risk components (Table 8, panels A/B).[20]

TABLE 8

Based on the figures reported in Table 8, the change in the overall risk (TR) of bank bidders is statistically insignificant while the idiosyncratic risk (*Hu*) diminishes and market risk ($\beta^2 \times Hm$) increases[21]. One interpretation of the latter result is that the greater size of the

[20] Note that we do not attempt to provide detailed explanations of the overall results presented in sections 4.5-4.6 due to the conflicting results for pre- and post-2007 deals. More detailed interpretations are offered in section 4.7.

[21] The changes in the systematic and idiosyncratic risk between the pre- and post-announcement periods are statistically significant at the 1% level. For more details, see Table 8 and the notes therein.

conglomerates increases their share in the market basket, and, thus, heightens their market risk exposure. In contrast, the decline in the unsystematic risk reflects expectations for diversification benefits.[22] The insurance bidders show a significant decline in total and systematic risks and an insignificant increase in idiosyncratic risk. This is somewhat expected as insurer exposures are more systematic (and less idiosyncratic) in nature than bank risks.

Risk spillover effects on peer institutions

With the onset of the 2007-2009 crisis, policymakers, regulators, and investors have become painfully aware of the consequences of high systemic risk on financial markets and the economy. A main source of increase in systemic risk is the rise in financial and/or political power of conglomerate firms, the instability of which can elevate their default risk (Vallascas and Hagendorff, 2011), sending shock waves within and/or across industries and threatening the stability of the financial system as a whole (Santomero and Eckles, 2000, Herring and Santomero, 1990). Specifically, economic power in financial markets may become concentrated in the hands of a few conglomerate firms to the extent that they will be able to substantially influence the entire financial sector to the detriment of their peers and the economy. Even unwittingly, these firms may unilaterally affect the flow of capital in particular directions with considerable undesirable impacts on peers and specific segments of the economy. In this context, Flannery (1998) reveals that there exist strong linkages among FIs, and Elyasiani et al. (2007) report the prevalence of inter-FI wealth-spillover effects, confirming the findings of previous studies on spillovers caused by distress announcements (Aharony and Swary, 1983,

[22] One may argue that our results merely reflect the proposition of portfolio theory that the addition of a second asset to a portfolio (insurance, in this case) reduces idiosyncratic risk. In this scenario, investors should be indifferent to bank (internal) diversification as they can eliminate idiosyncratic risk by holding a well-diversified portfolio. The counterargument is that diversification might be desirable to other market players such as regulators, managers, borrowers and taxpayers due to their interest in reducing total and systematic risks. Moreover, shareholders might also be interested in bank diversification due to the relation between earnings volatility, profits and factors such as tax, cost of external funds, regulations, capital requirements etc. (see Stiroh, 2010).

1996; Brewer and Jackson, 2002). Finally, Chen et al. (2014) find that banks create economically significant systemic risk for insurers but not vice versa.

There is limited work on risk spillover effects across sectors and across countries (Elyasiani and Mansur, 2003; Elyasiani et al., 2007) and none in the area of bancassurance. Thus, we proceed to assess the existence of risk spillover effects emanating from the bank-insurance interface to the financial services industry, and more specifically to the banking and insurance sectors. The risk decomposition analysis for peers due to bank-insurance and insurance-bank deals is also presented in Table 8. The total risk (*TR*) of the bank and insurer peers following bank-insurance deals decreased in the post-event period. Interestingly, the risk reduction is greater for insurer peers than for bank peers (Panel C). For both types of peers, this reduction is mostly attributable to the diminution in the firm-specific risk (*Hu*). Looking at the changes in the market risk ($\beta^2 \times Hm$), it is evident that bank-insurance deals do not have an impact on the market risk of bank peers but do reduce the market risk of insurer peers.[23,24] Insurance-bank deals trigger stronger contagion effects to peers than bank-insurance deals. Specifically, both bank and insurer peers experience significant reductions in all risk components following the announcements of insurer acquisitions of banks.[25]

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[23] Changes in all risk components between the pre- and post-announcement periods are significant at the 1% level for both bank and insurer peers (except for the change in systematic risk for bank peers which is insignificant). For more details, see Table 9 and the notes therein.

[24] It may be argued that the systematic risk reduction is primarily driven by changes in the market risk (H_m), not the risk of the bidder stocks (β or β^2). Under this assumption one would be unable to conclude that systematic risk has changed for the bidders, just that the post-event period has lower market volatility. This is not the case in the present analysis. Note that market returns are equally weighted returns of the different markets in which bidders are located and the deals take place in different periods. Hence, it would be incorrect to assume that market volatility simply dropped. What we observe in the reduction of H_m is a drop in the average volatility of the component markets used to calculate the overall market index, following the deals. If anything, these results provide some support for the notion that the average market risk may have dropped due to the formation of bank-insurance ventures.

[25] It is notable that the effects of bank/insurance takeovers on their peers are much harder to anticipate than those on the acquirers because of the conflicting forces generated by an acquisition. On the one hand, acquisitions, especially in cases of large deals, create a new competitive structure, forcing the peers to adopt new strategies to remain viable. These strategies will be necessarily varied and dependent on the surrounding environments. Peer firms will also be affected based on market assessment of whether the acquirers can effectively manage this new line of activity,

Our finding that the formation of conglomerates leads to risk reduction eases some of the regulatory concerns about bank-insurance ventures as these ventures reduce the risk of both banks and insurers, though they may increase the systemic risk due to increased connectedness of the two industries (De Jonghe, 2010; Wagner, 2010). These findings also provide guidance to investors on channeling their investments towards diversified bank-insurance hybrids, and to firm managers on how to enhance their performance while reducing their risk.

Risk effects, size and the timing of deals

Table 9 provides a breakdown of our risk decomposition results for pre- and post-2007 deals and reveals some interesting variations. Bank-insurance deals announced before 2007 reduce all bidder risk components. This is consistent with Boyd et al. (1993) who find that bank expansion into insurance is risk reducing. The net spillover effect on bank and insurer peers is of contagion nature, with both sectors experiencing reductions in all their risk components, perhaps due to market expectations that the formation of such conglomerates would benefit the industry. In contrast, the post-2007 deals increase all risk components of bank bidders. Bank peers are found to experience a reduction in total and idiosyncratic risk and an increase in systematic risk while insurer peers see a reduction in systematic risk and an increase in idiosyncratic risk. The post-2007 results on bank bidders might reflect the changing market perceptions on bank diversification as a result of the crisis. Similarly, for peers, the market may expect that non-diversifiers will be less exposed to idiosyncratic shocks, yet face higher systematic risk due to the formation of the conglomerate firm. Looking at insurance bidders, they exhibit increases in total and idiosyncratic risks and a decrease in systematic risk in the pre-2007 period, whereas all their risk components are reduced in the post-2007 deals. Perhaps the market was wary of the

namely the insurance business. On the other hand, market participants will form anticipations about the likelihood of peer firms becoming targets in future acquisitions, thus benefiting in ways discussed earlier. Our results are driven by the interaction of these factors.

effects of the addition of the banking component on their idiosyncratic risk, while anticipating a reduction in their systematic exposure. The post-crisis result may reflect the increasing faith in insurer-led bancassurance ventures. Finally, the results for bank peers and insurer peers vary across periods, once again reflecting the changed market perceptions.

TABLES 9 & 10

Table 10 presents a breakdown of the results based on deal size. The finding is that both large and small deals lead to insignificant changes in the total risk of bank bidders. Interestingly, bidders in large (small) deals experience significant reductions (increases) in unsystematic risk and increases (reductions) in systematic risk. The implications are straightforward. Large deals are expected to generate greater synergies though a combination of diversification, greater market/political power and increased access to government guarantees, hence, reducing bidders' exposure to company-specific shocks (Demsetz and Strahan, 1997; Stiroh, 2006). On the contrary, these deals expose banks to greater systematic risk because the combined firm becomes more similar to the aggregate market index. The results on insurance bidders are dissimilar to bank bidders and less intuitive. Insurance bidders in large deals exhibit reductions in their total and systematic risk but an increase in their idiosyncratic exposure while bidders in small deals see their total and idiosyncratic risk decrease and their systematic exposure increase. The explanation may be that when insurers acquire large banks, their risk-return profiles are very likely to be affected by the exposures of their targets, which are more heavily exposed to idiosyncratic risks than systematic risk, hence our results.

Finally, the market seems to have a positive reflection of large bank-insurance deals as bank and insurance peers exhibit reductions (increases) in all their risk components in large (small) bank-insurance deals. In contrast, insurance-banking deals lead to reductions in all risk elements of bank and insurer peers, for both pre- and post-financial-crisis deals.

SUMMARY AND CONCLUSIONS

We investigate the effect of bancassurance deals on the risk-return profiles of announcing banks and insurers as well as their non-announcing bank and insurer peers within a GARCH framework. We find that acquiring banks and their bank and insurer peers experience positive abnormal returns around the announcement time of the mergers. The effects on bank peers are weak while the effects on insurer peers are strong and persist over a longer period. On the contrary, acquiring and peer insurers experience insignificant excess returns, while bank peers exhibit positive valuations. The segmentation of the sample on the basis of the timing or the size of the deals reveals some interesting variations which can be explained by changing market perceptions regarding diversification in the aftermath of the financial crisis.

Our findings provide support for the integration of banking and insurance enterprises and for the passage of the Second Banking Directive (1989) in Europe, and the Financial Services Modernization Act (1999) in the U.S., but also warn against their consequences on systemic risk. This evidence stands in contrast to the existing studies reporting negative or insignificant returns and/or increases in risk associated with bank product diversification. Finally, our results have implications for financial firms, investors and public policy. At the firm level, bank managers seeking to improve performance and/or to reduce their overall risk exposure may consider structures combining banking and insurance. From an investment point of view, market participants may find that financial conglomerates are more suitable vehicles for diversification purposes than standalone banking or insurance firms. From the public policy perspective, the results stand against 'narrow banking' propositions since they would lead to a higher industry risk and lower return levels, compared to bank-insurance combinations. As previously noted, policymakers should distinguish between types of bank diversification that add value for shareholders without adding to systemic risk, and those that might pose a threat to the financial system, even if they generate firm-level benefits. Finally, our results on size effects could be viewed in light of the propositions in Kane (2000), suggesting that positive returns on M&As among the largest banks are the result of a combination of increased market power, wider political clout and greater access to the safety net.

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TABLE 1
Sample bank-insurance deals per country and year

Panel A. Number of firms per country

	Bank-Insurance		Insurance-Bank	
	Bidders	**Targets**	**Bidders**	**Targets**
Argentina	0	2	0	0
Australia	3	2	0	0
Belgium	1	0	0	2
Brazil	2	2	0	1
Canada	7	4	0	0
China	0	1	1	1
Cyprus	1	1	0	0
Denmark	4	4	0	0
Finland	1	1	1	1
France	1	0	1	1
Germany	2	2	0	1
Greece	1	2	0	0
Hong Kong	2	2	0	1
Luxembourg	0	0	0	1
Indonesia	0	1	0	0
Ireland	1	2	0	0
Italy	7	7	1	0
Latvia	1	1	0	0
Malaysia	1	0	0	0
Netherlands	0	1	5	0
Norway	2	1	1	1
Philippines	1	1	0	0
Poland	0	0	0	1
Portugal	2	3	0	0
Singapore	1	1	0	0
South Korea	1	1	0	0
Spain	4	2	0	0
Sweden	2	3	0	0
Switzerland	1	1	0	1
Taiwan	1	1	2	1
United Kingdom	5	3	1	1
United States	11	13	3	2
Vietnam	0	1	0	0
Total	**66**	**66**	**16**	**16**

Panel B. Number of deals per annum

	Bank-Insurance		Insurance-Bank	
	Deals	**% of total**	**Deals**	**% of total**
1991	2	3.03%	0	0.00%
1992	1	1.52%	0	0.00%
1993	1	1.52%	0	0.00%
1994	3	4.55%	0	0.00%
1995	2	3.03%	0	0.00%
1996	4	6.06%	0	0.00%
1997	3	4.55%	2	12.50%
1998	3	4.55%	0	0.00%
1999	6	9.09%	3	18.75%
2000	7	10.61%	3	18.75%
2001	3	4.55%	1	6.25%
2002	5	7.58%	0	0.00%
2003	4	6.06%	1	6.25%
2004	3	4.55%	0	0.00%
2005	2	3.03%	2	12.50%
2006	1	1.52%	1	6.25%
2007	5	7.58%	0	0.00%
2008	4	6.06%	0	0.00%
2009	3	4.55%	1	6.25%
2010	0	0.00%	1	6.25%
2011	1	1.52%	0	0.00%
2012	3	4.55%	1	6.25%
Total	**66**	**100%**	**16**	**100%**

The sample consists of 66 bank-insurance and 16 insurance-bank deals announced between 1991 and 2012. The first five columns show the number of bidders and targets per country (Source: the mergers and acquisitions database of Thomson One Banker). The last five columns show the number of deals, per year, in real terms as well as a percentage of the total number of deals.

TABLE 2
Bidder excess returns due bank-insurance takeovers

		Bank Bidders				*Insurance Bidders*			
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Panel A: Full Period[1]		Event windows for up to				Event windows for up to			
		3 days	5 days	7 days	9 days	3 days	5 days	7 days	9 days
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	1.22% (2.48) [b]	1.17% (2.24) [b]	1.01% (1.67) [c]	0.92% (1.38)	1.36% (1.13)	1.43% (1.18)	1.77% (1.36)	2.06% (1.39)
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	1.40% (2.96) [a]	0.35% (1.04)	0.31% (1.06)	0.25% (0.65)	1.43% (1.10)	0.91% (0.62)	0.69% (0.58)	0.81% (0.53)
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	1.18% (2.53) [b]	1.39% (2.68) [a]	1.24% (2.15) [b]	1.15% (1.86) [c]	1.16% (1.09)	1.70% (1.19)	2.05% (1.36)	2.33% (1.39)
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	1.45% (2.90) [a]	0.34% (1.01)	0.14% (0.67)	-0.01% (-0.16)	1.63% (1.14)	1.18% (0.72)	1.30% (0.86)	1.71% (0.86)
Panel B: Pre-2007[2]									
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	1.58% (2.62) [a]	1.43% (2.44) [b]	1.27% (1.96) [b]	1.28% (1.77) [c]	0.23% (0.80)	0.70% (1.33)	0.93% (1.43)	0.97% (1.15)
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	1.64% (2.92) [a]	0.39% (0.96)	0.45% (1.05)	0.31% (0.66)	-0.34% (-0.41)	-0.92% (-0.72)	-1.07% (-0.71)	-1.12% (-0.88)
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	1.47% (2.53) [b]	1.60% (2.82) [a]	1.45% (2.37) [b]	1.45% (2.18) [b]	-0.16% (-0.48)	0.52% (1.20)	0.75% (1.33)	0.80% (1.09)
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	1.75% (2.99) [a]	0.36% (1.06)	0.26% (0.85)	0.12% (0.41)	0.05% (0.71)	-0.06% (-0.06)	0.02% (0.28)	0.01% (0.01)
Panel C: Post-2007[3]									
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	0.12% (0.31)	0.33% (0.26)	0.18% (0.50)	-0.19% (-0.79)	6.23% (0.93)	4.58% (0.79)	5.43% (0.88)	6.75% (0.99)
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	0.67% (0.65)	0.21% (0.41)	-0.14% (-0.22)	0.06% (0.08)	9.10% (1.01)	8.82% (0.97)	8.28% (0.93)	9.21% (0.99)
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	0.28% (0.40)	0.73% (0.17)	0.58% (0.08)	0.21% (0.34)	6.89% (0.99)	6.80% (0.81)	7.64% (0.90)	8.97% (1.01)
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	0.51% (0.25)	0.27% (0.03)	-0.23 % (-0.31)	-0.40% (-0.62)	8.45% (0.95)	6.51% (0.77)	6.82% (0.82)	9.08% (0.98)

This table presents excess returns of bidder banks and bidder insurers due to bank-insurance deals announced between 1991 and 2012. Panel A presents the full period results for 66 bank bidders and 16 insurance bidders, while Panel B and Panel C present the pertinent excess returns for the pre-2007 (50 bank bidders and 13 insurance bidders) and post-2007 period (16 bank bidders and 3 insurance bidders), respectively. Reported values are cumulative average abnormal returns (CAAR). Abnormal returns are calculated using the market model via a GARCH process. Mean ARCH and GARCH coefficients are the averages across all firms. The average standard errors are derived as $\overline{s.e.} = \frac{1}{N}\left(\sum_{i=1}^{N} s.e.(\widehat{b_i})^2\right)^{1/2}$, where $\overline{s.e.}$ is the average standard error and $s.e.(\widehat{b_i})$ is the firm-specific standard error of the ARCH (□) and GARCH (□) coefficients (b represents θ and δ respectively). a/b/c denote significant CAAR at the 1%, 5%, 10% level (2-tailed test) for the pertinent event period.

[1] Panel A: For bank bidders the mean ARCH and GARCH coefficients (t-values) across firms are 0.112 (3.99) and 0.742 (15.84). Their sum, a measure of shock persistence, is 0.854. For insurance bidders the respective figures are: 0.124 (1.99) and 0.702 (7.31). Their sum is 0.826.

[2] Panel B: For bank bidders the mean ARCH and GARCH coefficients (t-values) across firms are 0.113 (3.54) and 0.733 (14.10). Their sum, a measure of shock persistence, is 0.846. For insurance bidders the respective figures are: 0.100 (1.50) and 0.722 (6.61). Their sum is 0.822.

[3] Panel C: For bank bidders the mean ARCH and GARCH coefficients (t-values) across firms are 0.110 (1.86) and 0.769 (7.39). Their sum, a measure of shock persistence, is 0.878. For insurance bidders the respective figures are: 0.230 (1.40) and 0.612 (3.15). Their sum is 0.842.

TABLE 3

Wealth spillover effects to bank and insurance peers based on GARCH models[*] *(bank-insurance deals)*

		Bank Peers				*Insurance Peers*			
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Panel A: Full Period[1]		Event windows for up to				Event windows for up to			
		3 days	5 days	7 days	9 days	3 days	5 days	7 days	9 days
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	0.42% (1.06)	0.54% (0.96)	0.44% (0.49)	0.52% (0.70)	0.60% (2.57) [b]	1.05% (3.45) [a]	0.96% (2.83) [a]	0.84% (2.11) [b]
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	0.38% (1.73) [c]	0.32% (0.19)	0.45% (0.41)	0.28% (0.00)	0.54% (2.42) [b]	0.50% (2.20) [b]	0.71% (2.32) [b]	1.23% (2.12) [b]
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	0.45% (2.26) [b]	0.47% (0.93)	0.37% (0.52)	0.45% (0.72)	0.44% (2.49) [b]	1.14% (3.36) [a]	1.06% (2.88) [a]	0.94% (2.27) [b]
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	0.35% (1.00)	0.41% (0.02)	0.44% (0.01)	0.35% (0.09)	0.70% (2.57) [b]	1.11% (3.13) [a]	1.23% (2.83) [a]	1.63% (2.27) [b]
Panel B: Pre-2007[2]									
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	0.34% (0.57)	0.55% (0.69)	0.48% (0.35)	0.56% (0.54)	0.48% (1.91) [c]	0.77% (2.48) [b]	0.62% (1.81) [c]	0.43% (1.09)
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	0.45% (1.81) [c]	0.74% (0.67)	1.04% (0.93)	0.81% (0.56)	0.50% (2.15) [b]	0.39% (1.75) [c]	0.80% (2.27) [b]	1.49% (2.06) [b]
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	0.38% (1.63)	0.62% (1.02)	0.54% (0.69)	0.62% (0.79)	0.31% (1.86) [c]	0.96% (2.70) [a]	0.80% (2.15) [b]	0.61% (1.50)
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	0.40% (0.94)	0.91% (0.47)	1.13% (0.56)	0.99% (0.40)	0.66% (2.22) [b]	0.85% (2.32) [b]	1.11% (2.32) [b]	1.60% (1.80) [c]
Panel C: Post-2007[3]									
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	0.70% (1.06)	0.47% (0.68)	0.32% (0.35)	0.41% (0.47)	1.02% (2.07) [b]	1.96% (2.66) [a]	2.10% (2.59) [a]	2.22% (2.49) [b]
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	0.17% (0.26)	-1.06% (-1.89) [c]	-1.52% (-1.81) [c]	-1.51% (-1.85) [c]	0.70% (1.16)	0.89% (1.71) [c]	0.42% (0.59)	0.38% (0.54)
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	0.68% (2.21) [b]	-0.04% (-0.11)	-0.19% (-0.11)	-0.10% (-0.01)	0.89% (2.07) [b]	1.77% (2.15) [b]	1.91% (2.16) [b]	2.03% (2.11) [b]
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	0.19% (0.38)	-1.27% (-1.20)	-1.88 % (-1.32)	-1.78% (-1.27)	0.83% (1.40)	1.96% (2.50) [b]	1.63% (1.77) [c]	1.72% (1.69) [c]

This table presents excess returns of bank peers and insurance peers due to bank-insurance deals announced between 1991 and 2012. Panel A presents the full period results for 52 bank peers and 43 insurance peers, while Panel B and Panel C present the pertinent excess returns for the pre-2007 (40 bank peers and 33 insurance peers) and post-2007 period (12 bank peers and 10 insurance peers), respectively. Reported values are cumulative average abnormal returns (CAAR). Abnormal returns are calculated using the market model via a GARCH process. Mean ARCH and GARCH coefficients are the averages across the pertinent peer portfolios. The average standard errors are derived as $\overline{s.e.} = \frac{1}{N}\left(\sum_{i=1}^{N} s.e.(\hat{b}_i)^2\right)^{1/2}$, where $\overline{s.e.}$ is the average standard error and $s.e.(\hat{b}_i)$ is the firm-specific standard error of the ARCH (□) and GARCH (□) coefficients (b represents θ and δ respectively). a/b/c denote significant CAAR at the 1%, 5%, 10% level (2-tailed test) for the pertinent event period.

[1] Panel A: For bank peers the mean ARCH and GARCH coefficients (t-values) across firms are 0.149 (4.35) and 0.583 (8.76). Their sum, a measure of shock persistence, is 0.732. For insurance peers the respective figures are: 0.140 (3.83) and 0.655 (11.55). Their sum is 0.795.

[2] Panel B: For bank peers the mean ARCH and GARCH coefficients (t-values) across firms are 0.146 (3.77) and 0.546 (6.88). Their sum, a measure of shock persistence, is 0.693. For insurance peers the respective figures are: 0.125 (3.03) and 0.651 (9.50). Their sum is 0.776.

[3] Panel C: For bank peers the mean ARCH and GARCH coefficients (t-values) across firms are 0.157 (2.18) and 0.718 (6.67). Their sum, a measure of shock persistence, is 0.875. For insurance peers the respective figures are: 0.190 (2.40) and 0.667 (7.18). Their sum is 0.857.

[*] Bank and insurance peers represent peer portfolios constructed following the procedure described in Section 3.1.

TABLE 4

Wealth spillover effects to bank and insurance peers based on GARCH models* *(insurance-bank deals)*

		Bank Peers				*Insurance Peers*			
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Panel A: Full Period[1]		Event windows for up to				Event windows for up to			
		3 days	5 days	7 days	9 days	3 days	5 days	7 days	9 days
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	-0.28% (-0.72)	0.02% (0.09)	-0.24% (-0.16)	-0.23% (-0.13)	-0.08% (-0.03)	-0.05% (-0.31)	0.01% (0.53)	-0.24% (-0.01)
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	-0.19% (-0.05)	-0.31% (-0.16)	-0.07% (-0.61)	-0.39% (-0.14)	0.02% (0.35)	-0.23% (-0.02)	0.35% (0.81)	0.17% (0.49)
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	-0.29% (-1.14)	0.12% (0.43)	-0.14% (-0.16)	-0.14% (-0.18)	-0.06% (-0.02)	0.03% (0.52)	0.08% (0.69)	-0.16% (-0.25)
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	-0.19% (-0.16)	0.00% (0.31)	-0.02% (-0.59)	-0.33% (-0.26)	0.00% (0.33)	-0.22% (-0.20)	0.41% (1.01)	-0.01% (-0.38)
Panel B: Pre-2007[2]									
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	-0.48% (-0.75)	-0.13% (-0.17)	-0.28% (-0.16)	-0.54% (-0.41)	0.03% (0.14)	-0.01% (-0.01)	0.07% (0.30)	-0.38% (-0.33)
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	-0.79% (-1.19)	-1.15% (-1.36)	-0.65% (-0.06)	-0.60% (-0.15)	0.29% (0.55)	-0.19% (-0.12)	0.68% (0.81)	0.39% (0.47)
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	-0.51% (-1.85) [c]	-0.41% (-0.27)	-0.56% (-0.25)	-0.82% (-0.49)	0.07% (0.04)	0.21% (0.42)	0.29% (0.60)	-0.16% (-0.08)
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	-0.75% (-0.78)	-0.76% (-0.54)	-0.42% (-0.27)	-0.63% (-0.13)	0.26% (0.35)	-0.27% (-0.11)	0.67% (0.80)	-0.06% (-0.07)
Panel C: Post-2007[3]									
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	0.10% (0.04)	0.33% (0.44)	-0.16% (-0.04)	0.38% (0.37)	-0.30% (-0.26)	-0.12% (-0.57)	-0.12% (-0.51)	0.05% (0.63)
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	1.01% (1.75) [c]	1.36% (1.72) [c]	1.10% (1.10)	0.04% (0.06)	-0.52% (-0.26)	-0.30% (-0.15)	-0.31% (-0.20)	-0.25% (-0.16)
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	0.15% (0.13)	1.18% (1.30)	0.69% (0.70)	1.23% (1.06)	-0.31% (-0.06)	-0.33% (-0.28)	-0.33% (-0.27)	-0.17% (-0.39)
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	0.95% (1.55)	1.53% (1.47)	0.78% (0.67)	0.26% (0.28)	-0.51% (-0.02)	-0.12% (-0.63)	-0.12% (-0.62)	0.10% (0.68)

This table presents excess returns of bank peers and insurance peers due to insurance-bank deals announced between 1991 and 2012. Panel A presents the full period results for 9 bank peers and 9 insurance peers, while Panel B and Panel C present the pertinent excess returns for the pre-2007 (6 bank peers and 6 insurance peers) and post-2007 period (3 bank peers and 3 insurance peers), respectively. Reported values are cumulative average abnormal returns (CAAR). Abnormal returns are calculated using the market model via a GARCH process. Mean ARCH and GARCH coefficients are the averages across the pertinent peer portfolios. The average standard errors are derived as $\overline{s.e.} = \frac{1}{N}\left(\sum_{i=1}^{N} s.e.(\widehat{b_i})^2\right)^{1/2}$, where $\overline{s.e.}$ is the average standard error and $s.e.(\widehat{b_i})$ is the firm-specific standard error of the ARCH ([illegible]) and GARCH ([illegible]) coefficients (b represents θ and δ respectively). a/b/c denote significant CAAR at the 1%, 5%, 10% level (2-tailed test) for the pertinent event period.

[1] Panel A: For bank peers the mean ARCH and GARCH coefficients (t-values) across peer portfolios are 0.084 (1.11) and 0.782 (6.06). Their sum, a measure of shock persistence, is 0.866. For insurance peers the respective figures are: 0.063 (1.05) and 0.872 (9.57). Their sum is 0.934.

[2] Panel B: For bank peers the mean ARCH and GARCH coefficients (t-values) across peer portfolios are 0.087 (0.94) and 0.741 (4.34). Their sum, a measure of shock persistence, is 0.828. For insurance peers the respective figures are: 0.058 (0.80) and 0.855 (6.97). Their sum is 0.913.

[3] Panel C: For bank peers the mean ARCH and GARCH coefficients (t-values) across peer portfolios are 0.077 (0.59) and 0.864 (4.72). Their sum, a measure of shock persistence, is 0.941. For insurance peers the respective figures are: 0.072 (0.68) and 0.906 (7.51). Their sum is 0.978.

[*] Bank and insurance peers represent peer portfolios constructed following the procedure described in Section 3.1.

TABLE 5
Bidder and peer excess return: Large versus small bank-insurance deals

		Large Deals				*Small Deals*			
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Panel A: Bank Bidders[1]		Event windows for up to				Event windows for up to			
		3 days	5 days	7 days	9 days	3 days	5 days	7 days	9 days
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	1.64% (2.13) [b]	1.38% (1.84) [c]	0.63% (0.82)	0.33% (0.36)	0.80% (1.37)	0.95% (1.36)	1.39% (2.03) [b]	1.52% (2.17) [b]
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	2.14% (2.69) [a]	1.64% (1.91) [c]	1.41% (1.87) [c]	1.15% (1.53)	0.67% (1.33)	-0.94% (-0.73)	-0.79% (-0.61)	-0.65% (-0.80)
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	1.73% (2.12) [b]	1.79% (2.41) [b]	1.04% (1.46)	0.73% (1.01)	0.62% (1.96) [b]	1.00% (1.22)	1.43% (1.84) [c]	1.56% (2.00) [b]
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	2.05% (2.68) [a]	1.29% (1.69) [c]	0.31% (0.81)	-0.26% (-0.14)	0.85% (1.17)	-0.61% (-0.43)	-0.03% (-0.11)	0.24% (0.08)
Panel B: Bank Peers[2]									
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	0.50% (1.16)	0.59% (0.97)	0.24% (0.05)	0.25% (0.06)	0.35% (0.38)	0.48% (0.40)	0.63% (0.73)	0.77% (0.89)
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	0.45% (1.21)	0.48% (1.07)	0.36% (1.07)	0.16% (0.25)	0.32% (1.25)	0.18% (0.28)	0.53% (0.07)	0.38% (0.14)
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	0.62% (2.24) [b]	0.43% (0.53)	0.07% (0.35)	0.09% (0.34)	0.30% (0.89)	0.50% (0.77)	0.65% (1.05)	0.79% (1.12)
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	0.34% (0.62)	0.46% (0.57)	-0.02% (-0.15)	-0.20% (-0.68)	0.37% (0.79)	0.37% (0.28)	0.86% (0.10)	0.86% (0.28)
Panel C: Insurance Peers[3]									
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	0.98% (2.35) [b]	1.59% (2.84) [a]	1.64% (2.49) [b]	1.73% (2.51) [b]	0.27% (1.20)	0.58% (1.95) [c]	0.38% (1.46)	0.07% (0.48)
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	0.91% (2.03) [b]	0.78% (1.67) [c]	0.99% (1.54)	0.72% (1.09)	0.22% (1.32)	0.26% (1.41)	0.46% (1.75) [c]	1.67% (1.83) [c]
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	0.70% (2.16) [b]	1.80% (2.72) [a]	1.84% (2.44) [b]	1.94% (2.49) [b]	0.22% (1.27)	0.58% (1.95) [c]	0.38% (1.57)	0.07% (0.69)
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	1.19% (2.25) [b]	1.66% (2.38) [b]	1.93% (2.04) [b]	1.75% (1.75) [c]	0.27% (1.31)	0.62% (1.99) [b]	0.62% (1.93) [c]	1.52% (1.53)

This table presents excess returns of bidder banks, bank peers and insurance peers due to small and large bank-insurance deals (based on median deal size) announced between 1991 and 2012. Panel A presents the results for 33 large and 33 small deals. Panel B presents the pertinent excess returns for bank peer portfolios due to 25 large and 27 small deals, while Panel C presents the pertinent excess returns for insurance peer portfolios due to 20 large and 23 small deals. Reported values are cumulative average abnormal returns (CAAR). Abnormal returns are calculated using the market model via a GARCH process. Mean ARCH and GARCH coefficients are the averages across all firms. The average standard errors are derived as $\overline{s.e.} = \frac{1}{N}\left(\sum_{i=1}^{N} s.e.(\widehat{b_i})^2\right)^{1/2}$, where $\overline{s.e.}$ is the average standard error and $s.e.(\widehat{b_i})$ is the firm-specific standard error of the ARCH ($\widehat{\theta}$) and GARCH ($\widehat{\delta}$) coefficients (b represents θ and δ respectively). a/b/c denote significant CAAR at the 1%, 5%, 10% level (2-tailed test) for the pertinent event period. Note, the uneven number of large and small deals in some cases arises due to the unavailability of data on peer groups for certain large and/or small deals.

[1] Panel A: For large deals the mean ARCH and GARCH coefficients (t-values) are 0.114 (2.81) and 0.767 (12.25). Their sum, a measure of shock persistence, is 0.882. For small deals the respective figures are: 0.109 (2.84) and 0.716 (10.26). Their sum is 0.825.

[2] Panel B: For large deals the mean ARCH and GARCH coefficients (t-values) are 0.116 (2.46) and 0.589 (5.25). Their sum, a measure of shock persistence, is 0.705. For small deals the respective figures are: 0.179 (3.64) and 0.577 (7.72). Their sum is 0.756.

[3] Panel C: For large deals the mean ARCH and GARCH coefficients (t-values) are 0.106 (2.25) and 0.771 (10.03). Their sum, a measure of shock persistence, is 0.877. For small deals the respective figures are: 0.170 (3.10) and 0.554 (6.70). Their sum is 0.723.

TABLE 6
Bidder and peer excess returns: Large versus small insurance-bank deals

		Large Deals				Small Deals			
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Panel A: Insurer Bidders[1]		Event windows for up to				Event windows for up to			
		3 days	5 days	7 days	9 days	3 days	5 days	7 days	9 days
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	0.07% (0.29)	-0.02% (-0.36)	0.52% (0.59)	1.37% (1.06)	2.65% (1.09)	2.87% (1.12)	3.02% (1.23)	2.74% (1.11)
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	-0.40% (-0.24)	-1.76% (-1.25)	-2.10% (-1.37)	-1.93% (-1.26)	3.27% (1.07)	3.59% (0.94)	3.48% (0.93)	3.56% (0.89)
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	-0.20% (-0.33)	-0.22% (-0.31)	0.32% (0.53)	1.17% (0.99)	2.53% (1.05)	3.62% (1.14)	3.77% (1.25)	3.49% (1.13)
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	-0.13% (-0.22)	-1.58% (-0.82)	-1.38% (-0.63)	-0.36% (-0.14)	3.39% (1.11)	3.93% (1.01)	3.97% (1.11)	3.78% (0.95)
Panel B: Bank Peers[2]									
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	-0.69% (-0.84)	-0.66% (-0.46)	-1.12% (-0.55)	-1.50% (-0.90)	0.04% (0.36)	0.57% (0.35)	0.46% (0.20)	0.78% (0.47)
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	-0.50% (-0.76)	-0.62% (-0.11)	-0.18% (-0.59)	-0.18% (-0.59)	0.06% (0.36)	-0.07% (-0.11)	0.03% (0.26)	-0.56% (-0.31)
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	-0.48% (-1.57)	-0.68% (-0.30)	-1.14% (-0.43)	-1.52% (-0.76)	-0.14% (-0.36)	0.76% (0.63)	0.65% (0.48)	0.97% (0.72)
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	-0.71% (-0.52)	-0.80% (-0.01)	-0.82% (-0.37)	-1.20% (-0.15)	0.23% (0.09)	0.64% (0.34)	0.62% (0.42)	0.36% (0.21)
Panel C: Insurance Peers[3]									
1	*Pre-event window*	[-1 0]	[-2 0]	[-3 0]	[-4 0]	[-1 0]	[-2 0]	[-3 0]	[-4 0]
	CAAR (t-value)	-0.61% (-0.38)	-0.33% (-0.18)	-0.35% (-0.34)	-0.70% (-0.13)	0.35% (0.45)	0.18% (0.26)	0.29% (0.41)	0.14% (0.20)
2	*Post-event window*	[0 +1]	[0 +2]	[0 +3]	[0 +4]	[0 +1]	[0 +2]	[0 +3]	[0 +4]
	CAAR (t-value)	-0.61% (-0.47)	-1.06% (-1.00)	-0.87% (-0.69)	-0.86% (-0.71)	0.53% (0.69)	0.44% (0.72)	1.32% (1.49)	0.99% (1.11)
3	*Event window*	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]	[0 0]	[-2 +1]	[-3 +1]	[-4 +1]
	CAAR (t-value)	-0.50% (-0.84)	-0.44% (-0.26)	-0.46% (-0.39)	-0.82% (-0.05)	0.30% (0.88)	0.41% (0.44)	0.52% (0.54)	0.37% (0.40)
4	*Event window*	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]	[-1 +1]	[-2 +2]	[-3 +3]	[-4 +4]
	CAAR (t-value)	-0.72% (-0.22)	-0.89% (-0.27)	-0.72% (-0.15)	-1.06% (-0.26)	0.58% (0.55)	0.32% (0.47)	1.31% (1.24)	0.83% (0.78)

This table presents excess returns of bidder insurers, bank peers and insurance peers due to small and large insurance-bank deals (based on median deal size) announced between 1991 and 2012. Panel A presents the results for 8 large and 8 small deals. Panel B presents the pertinent excess returns for bank peer portfolios due to 4 large and 5 small deals, while Panel C presents the pertinent excess returns for insurance peer portfolios due to 4 large and 5 small deals. Reported values are cumulative average abnormal returns (CAAR). Abnormal returns are calculated using the market model via a GARCH process. Mean ARCH and GARCH coefficients are the averages across all firms. The average standard errors are derived as $\overline{s.e.} = \frac{1}{N}\left(\sum_{i=1}^{N} s.e.(\hat{b}_i)^2\right)^{1/2}$, where $\overline{s.e.}$ is the average standard error and $s.e.(\hat{b}_i)$ is the firm-specific standard error of the ARCH ($\hat{\theta}$) and GARCH ($\hat{\delta}$) coefficients (b represents θ and δ respectively). a/b/c denote significant CAAR at the 1%, 5%, 10% level (2-tailed test) for the pertinent event period. Note, the uneven number of large and small deals in some cases arises due to the unavailability of data on peer groups for certain large and/or small deals.

[1] Panel A: For large deals the mean ARCH and GARCH coefficients (t-values) are 0.108 (1.24) and 0.730 (5.38). Their sum, a measure of shock persistence, is 0.838. For small deals the respective figures are: 0.140 (1.57) and 0.674 (4.97). Their sum is 0.814.

[2] Panel B: For large deals the mean ARCH and GARCH coefficients (t-values) are 0.071 (0.78) and 0.915 (9.45). Their sum, a measure of shock persistence, is 0.986. For small deals the respective figures are: 0.093 (0.82) and 0.676 (3.08). Their sum is 0.769.

[3] Panel C: For large deals the mean ARCH and GARCH coefficients (t-values) are 0.071 (0.77) and 0.824 (5.21). Their sum, a measure of shock persistence, is 0.895. For small deals the respective figures are: 0.056 (0.72) and 0.910 (8.72). Their sum is 0.966.

TABLE 7

Cross-sectional regression analysis of bank-insurance deals

$$AR_i = X\boldsymbol{\Phi} + \varepsilon_i \quad (7)$$

		Panel A: Full Period				Panel B: Interactions			
		1	2	3	4	5	6	7	8
		Event window				Event window			
		[-1 0]	[0 0]	[0 +1]	[-1 +1]	[-1 0]	[0 0]	[0 +1]	[-1 +1]
1	*C*	0.010 (0.42)	-0.011 (-0.58)	-0.011 (-0.24)	-0.012 (-0.24)	-0.002 (-0.10)	-0.004 (-0.32)	-0.035 (-0.98)	-0.034 (-0.80)
2	D_{POST}					0.066 (2.19)[b]	0.047 (1.93)[c]	0.052 (1.19)	0.071 (1.47)
3	*OBSA*	0.000 (0.09)	0.000 (0.13)	-0.000 (-0.53)	-0.000 (-0.48)	0.001 (1.46)	0.001 (2.26)[b]	0.000 (0.59)	0.000 (0.44)
4	D_{POST} x *OBSA*					-0.002 (-2.30)[b]	-0.003 (-3.12)[a]	-0.004 (-3.22)[a]	-0.004 (-2.61)[b]
5	*LEV*	0.001 (2.02)[b]	0.000 (1.17)	0.000 (0.83)	0.001 (1.46)	0.002 (3.49)[a]	0.001 (3.22)[a]	0.002 (2.59)[b]	0.002 (3.22)[a]
6	D_{POST} x *LEV*					-0.002 (-1.86)[c]	-0.001 (-2.13)[b]	-0.001 (-1.11)	-0.002 (-1.13)
7	*ROE*	-0.001 (-1.01)	-0.000 (-0.73)	0.002 (1.17)	0.001 (-0.82)	-0.003 (-2.77)[b]	-0.002 (-3.73)[a]	-0.001 (-0.77)	-0.001 (-0.87)
8	D_{POST} x *ROE*					0.002 (1.53)	0.003 (2.74)[b]	0.006 (2.75)[b]	0.006 (2.15)[b]
9	*RDS*	0.142 (7.20)[a]	0.152 (9.21)[a]	0.079 (2.38)[b]	0.068 (1.95)[c]	0.168 (9.69)[a]	0.173 (13.53)[a]	0.126 (5.56)[a]	0.120 (4.51)[a]
10	D_{POST} x *RDS*					-0.459 (-4.11)[a]	-0.328 (-2.99)[a]	-0.493 (-2.03)[c]	-0.623 (-2.58)[b]
11	*M/B*	0.007 (1.43)	0.003 (0.90)	-0.004 (-0.57)	-0.000 (-0.07)	0.007 (1.98)[c]	0.004 (1.21)	-0.004 (-0.66)	0.000 (-0.05)
12	D_{POST} x *M/B*					-0.015 (-1.72)	-0.025 (-2.87)[a]	-0.035 (-2.36)[b]	-0.026 (-1.67)
13	*DV-DOM*	-0.006 (-0.54)	-0.008 (-1.25)	0.017 (1.05)	0.019 (0.97)	0.008 (0.66)	0.010 (1.15)	0.061 (3.28)[a]	0.059 (2.97)[a]
14	*DV-U.S.*	0.026 (2.66)[b]	0.025 (2.59)[b]	0.011 (0.64)	0.013 (0.69)	0.014 (1.68)	0.017 (2.20)[b]	-0.011 (-0.83)	-0.013 (-0.83)
15	*DV-OFFER*	-0.020 (-1.35)	-0.011 (-1.10)	-0.030 (-1.18)	-0.039 (-1.42)	-0.011 (-0.60)	-0.003 (-0.25)	-0.022 (-0.93)	-0.030 (-1.09)
16	*DV-SOUGHT*	0.005 (0.70)	0.001 (0.20)	-0.002 (-0.18)	0.002 (0.13)	-0.006 (-0.66)	-0.011 (-1.25)	-0.034 (-2.05)[c]	-0.029 (-1.62)
17	*DIST*	-0.003 (-1.12)	-0.001 (0.76)	0.004 (0.94)	0.002 (0.45)	0.000 (-0.12)	0.003 (1.11)	0.013 (2.90)[a]	0.010 (2.12)[b]
	Adjusted R^2	0.67	0.75	0.18	0.15	0.76	0.84	0.42	0.36
	F-statistic	8.30	11.41	1.78	1.62	7.80	12.41	2.61	2.23

The sample consists of 66 bank-insurance deals announced between 1991 and 2012. After adjusting for companies with unavailable accounting data, the sample size drops to 36 deals. Abnormal returns (AR) are calculated using the market model via a GARCH framework. The cross-sectional regression is estimated using ordinary least squares. Panel A presents the full period results, while Panel B presents the results when interacting accounting variables with D_{POST}, a dummy equal to 1 for deals announced after 2007 and 0 otherwise. *OBSA* is a measure of bidder off-balance sheet activities and functional diversification (non-interest income-to-total operating income ratio); *LEV* is a measure of the bidder's leverage (asset/equity); *ROE* is the bidder's return on equity; *RDS* is the relative size of the deal to the bidder's market value; *M/B* is a measure of bidder's growth opportunities and lack of transparency (market-to-book ratio); *DV-DOM* equals 1 if deal is domestic and 0 otherwise; *DV-U.S.* equals 1 if bidder is based in the U.S. and 0 otherwise; *DV-OFFER* is the accounts for the type of consideration offered by the bidder, it equals 1 for cash and 0 for stock; *DV-SOUGHT* is the consideration sought (what the bidder buys from the target), it equals 1 for stock and 0 otherwise (provided as stock versus assets by Thomson One Banker); and, *DIST* is a measure of geographic diversification (distance between acquirer and target). We orthogonalize M/B against ROE because they are correlated. The figures in brackets are 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 8
Risk decomposition of bidders and peers*

	Bank-Insurance Deals			Insurance-Bank Deals		
	Bank Bidders	Bank Peers	Insurance Peers	Insurance Bidders	Bank Peers	Insurance Peers
Panel A. Pre-announcement Day -250 to Day -1						
TR	5.176	3.847	3.936	5.352	4.017	3.852
$\beta^2 \times Hm$	1.957	2.049	1.984	2.688	2.899	2.655
Hu	3.218	1.798	1.953	2.664	1.118	1.198
Mean β	1.065	0.894	0.842	0.976	1.121	1.020
Mean β^2	1.225	0.884	0.781	1.002	1.343	1.097
Mean $\overline{h_{mt}}$	2.037	2.301	2.205	2.244	2.341	2.341
Panel B. Post-announcement Day +1 to Day +250						
TR	5.216	3.393	3.303	4.314	2.199	2.421
$\beta^2 \times Hm$	2.079	2.047	1.747	1.637	1.587	1.565
Hu	3.137	1.347	1.556	2.677	0.612	0.856
Mean β	1.129	0.918	0.893	0.922	1.054	1.055
Mean β^2	1.380	0.928	0.868	0.944	1.157	1.135
Mean $\overline{h_{mt}}$	2.131	2.175	1.738	1.643	1.450	1.450
Panel C. Changes in risk pre- and post-announcement †						
Δ (TR)	0.041	-0.453	-0.633	-1.038	-1.818	-1.432
t-stat	(1.13)	(-4.15)[a]	(-10.88)[a]	(-12.84)[a]	(-18.60)[a]	(-13.98)[a]
$\Delta (\beta^2 \times Hm)$	0.122	-0.002	-0.237	-1.051	-1.312	-1.090
t-stat	(4.24)[a]	(-0.05)	(-4.78)[a]	(-15.37)[a]	(-14.94)[a]	(-11.62)[a]
Δ (Hu)	-0.081	-0.451	-0.396	0.013	-0.506	-0.341
t-stat	(-2.99)[a]	(-4.83)[a]	(-17.67)[a]	(0.36)	(-24.76)[a]	(-15.33)[a]
Δ (Mean β)	0.064	0.024	0.051	-0.053	-0.068	0.035
t-stat	(0.56)	(0.41)	(0.88)	(-0.54)	(-0.53)	(0.35)
Δ (Mean β^2)	0.155	0.044	0.088	-0.058	-0.186	0.038
t-stat	(0.56)	(0.39)	(0.85)	(-0.31)	(-0.62)	(0.19)
Δ (Mean $\overline{h_{mt}}$)	0.094	-0.127	-0.467	-0.601	-0.891	-0.891
t-stat	(3.27)[a]	(-3.50)[a]	(-16.18)[a]	(-14.53)[a]	(-12.36)[a]	(-12.36)[a]
Sample Size	66	52	43	16	9	9

The table presents the shift in relative importance of the types of risk composing total bidder and peer portfolio risk before and after bank-insurance and insurance-bank deals, announced between 1991 and 2012. Panels A and B present the pre- and post-announcement figures, while Panel C presents the changes. All the risk measures have been calculated using the models described in Eq. (8). The conditional variance terms are multiplied by 10^4. Mean is the average figure across all deals. $\overline{h_{mt}}$ is the average of the market indices over the reference period - see Eq. (8) and subsequent discussion. *TR* = total risk, β = hedge ratio derived from the single index model. *Hm* = market conditional variance, *Hu* = residual conditional variance.

* Bank and insurance peers represent peer portfolios constructed following the procedure described in Section 3.1.

† Negative (positive) values indicate reduction (increase) from the pre- to the post-announcement period. The figures in brackets are t-values from tests on the mean difference between pre- and post-announcement figures; a/b/c denote significance at the 0.01/0.05/0.10 level.

TABLE 9
Risk decomposition of bidders and peers* *(Pre- vs. post-2007 deals)*

	Pre-2007						*Post-2007*					
	Bank-Insurance Deals			Insurance-Bank Deals			Bank-Insurance Deals			Insurance-Bank Deals		
	Bank Bidders	Bank Peers	Insurance Peers	Insurance Bidders	Bank Peers	Insurance Peers	Bank Bidders	Bank Peers	Insurance Peers	Insurance Bidders	Bank Peers	Insurance Peers
Panel A. Pre-announcement Day -250 to Day -1												
TR	4.583	2.486	3.060	4.052	2.092	1.969	6.987	8.267	6.826	10.985	7.866	7.618
$\beta^2 \times Hm$	1.644	1.367	1.197	1.793	1.108	0.817	2.914	4.264	4.579	6.569	6.481	6.330
Hu	2.939	1.119	1.863	2.260	0.984	1.152	4.073	4.003	2.247	4.416	1.385	1.288
Panel B. Post-announcement Day +1 to Day +250												
TR	3.989	2.194	2.301	4.470	2.164	2.478	8.974	7.292	6.607	3.639	2.269	2.306
$\beta^2 \times Hm$	1.460	1.263	1.029	1.649	1.464	1.448	3.975	4.594	4.113	1.582	1.833	1.798
Hu	2.529	0.931	1.272	2.821	0.700	1.030	4.999	2.698	2.494	2.057	0.436	0.508
Panel C. Changes in risk pre- and post-announcement †												
Δ (TR)	-0.594	-0.292	-0.759	0.418	0.072	0.509	1.987	-0.975	-0.219	-7.346	-5.598	-5.312
t-stat	(-19.40)[a]	(-13.07)[a]	(-28.72)[a]	(6.72)[a]	(1.41)	(9.81)[a]	(18.25)[a]	(-2.20)[b]	(-0.89)	(-17.41)[a]	(-20.92)[a]	(-18.05)[a]
$\Delta (\beta^2 \times Hm)$	-0.184	-0.104	-0.168	-0.143	0.356	0.631	1.060	0.330	-0.466	-4.987	-4.648	-4.532
t-stat	(-8.12)[a]	(-6.81)[a]	(-16.05)[a]	(-3.27)[a]	(9.52)[a]	(17.24)[a]	(13.24)[a]	(2.14)[b]	(-2.16)[b]	(-14.50)[a]	(-17.52)[a]	(-16.08)[a]
Δ (Hu)	-0.410	-0.188	-0.591	0.561	-0.284	-0.122	0.926	-1.305	0.247	-2.359	-0.950	-0.780
t-stat	(-16.23)[a]	(-12.28)[a]	(-26.02)[a]	(15.49)[a]	(-12.12)[a]	(-4.30)[a]	(12.42)[a]	(-3.37)[a]	(3.65)[a]	(-14.41)[a]	(-21.36)[a]	(-29.59)[a]
Sample Size	50	40	33	13	6	6	16	12	10	3	3	3

This table presents the shift in relative importance of the types of risk composing total bidder and peer portfolio risk before and after bank-insurance and insurance-bank deals, announced between 1991 and 2012. Results for deals announced before and after 2007 are presented separately. Panels A and B present the pre- and post-announcement figures, while Panel C presents the changes. All the risk measures have been calculated using the models described in Eq. (8). The conditional variance terms are multiplied by 10^4. Mean is the average figure across all deals. *TR* = total risk, β = hedge ratio derived from the single index model. *Hm* = market conditional variance, *Hu* = residual conditional variance.

* Bank and insurance peers represent peer portfolios constructed following the procedure described in Section 3.1.

† Negative (positive) values indicate reduction (increase) from the pre- to the post-announcement period. The figures in brackets are t-values from tests on the mean difference between pre- and post-announcement figures; a/b/c denote significance at the 0.01/0.05/0.10 level.

TABLE 10
Risk decomposition of bidders and peers[*] *(Large vs. small deals)*

	Large Deals						*Small Deals*					
	Bank-Insurance Deals			Insurance-Bank Deals			Bank-Insurance Deals			Insurance-Bank Deals		
	Bank Bidders	Bank Peers	Insurance Peers	Insurance Bidders	Bank Peers	Insurance Peers	Bank Bidders	Bank Peers	Insurance Peers	Insurance Bidders	Bank Peers	Insurance Peers
Panel A. Pre-announcement Day -250 to Day -1												
TR	4.782	4.716	5.007	6.724	4.738	4.605	5.581	3.011	3.005	3.980	3.439	3.250
$\beta^2 \times Hm$	1.985	2.241	2.627	3.929	3.686	3.641	1.929	1.864	1.424	1.447	2.269	1.866
Hu	2.797	2.475	2.380	2.795	1.051	0.965	3.652	1.147	1.581	2.533	1.171	1.384
Panel B. Post-announcement Day +1 to Day +250												
TR	4.794	2.942	2.717	5.023	2.185	2.740	5.651	3.827	3.813	3.605	2.210	2.165
$\beta^2 \times Hm$	2.326	1.799	1.294	1.847	1.694	1.777	1.825	2.284	2.140	1.426	1.501	1.395
Hu	2.469	1.142	1.423	3.176	0.491	0.963	3.826	1.543	1.673	2.179	0.709	0.770
Panel C. Changes in risk pre- and post-announcement [†]												
Δ (TR)	0.012	-1.774	-2.290	-1.701	-2.553	-1.865	0.070	0.816	0.808	-0.375	-1.230	-1.085
t-stat	(0.26)	(-9.51)[a]	(-24.40)[a]	(-10.62)[a]	(-14.48)[a]	(9.19)[a]	(1.13)	(7.44)[a]	(10.53)[a]	(-4.09)[a]	(-12.65)[a]	(-13.46)[a]
$\Delta (\beta^2 \times Hm)$	0.341	-0.441	-1.333	-2.082	-1.993	-1.864	-0.104	0.420	0.716	-0.021	-0.768	-0.471
t-stat	(10.65)[a]	(-10.24)[a]	(-16.49)[a]	(-15.35)[a]	(-12.62)[a]	(-9.81)[a]	(-2.49)[b]	(6.25)[a]	(11.12)[a]	(-0.43)	(-9.33)[a]	(-7.88)[a]
Δ (Hu)	-0.329	-1.332	-0.957	0.381	-0.560	-0.002	0.174	0.396	0.091	-0.354	-0.462	-0.614
t-stat	(-8.63)[a]	(-7.42)[a]	(-26.01)[a]	(7.62)[a]	(-22.08)[a]	(-0.05)	(3.97)[a]	(6.29)[a]	(3.21)[a]	(-5.07)[a]	(-13.03)[a]	(-17.22)[a]
Sample Size	33	25	20	8	4	4	33	27	23	8	5	5

The table presents the shift in relative importance of the types of risk composing total bidder and peer portfolio risk before and after bank-insurance and insurance-bank deals, announced between 1991 and 2012. Results for large (above median) and small (below median) deals are presented separately. Panels A and B present the pre- and post-announcement figures, while Panel C presents the changes. All the risk measures have been calculated using the models described in Eq. (8). The conditional variance terms are multiplied by 10^4. Mean is the average figure across all deals. *TR* = total risk, β = hedge ratio derived from the single index model. *Hm* = market conditional variance, *Hu* = residual conditional variance.

[*] Bank and insurance peers represent peer portfolios constructed following the procedure described in Section 3.1.

[†] Negative (positive) values indicate reduction (increase) from the pre- to the post-announcement period. The figures in brackets are t-values from tests on the mean difference between pre- and post-announcement figures; a/b/c denote significance at the 0.01/0.05/0.10 level. Note, the uneven number of large and small deals in some cases arises due to the unavailability of data on peer groups for certain large and/or small deals.