

# Financial institutions mergers: a strategy choice of wealth maximisation and economic value

Wealth  
maximisation  
and economic  
value

495

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## Abstract

**Purpose** – This study Investigates Shareholders' value adjustment in response to financial institutions (FIs) merger announcements in the immediate event window and in the extended event window. This study also investigates accounting measures performance, comparison of post-merger to pre-merger, including several cash flow measures and not just profitability measures, as the empirical literature review suggests. Finally, the authors examine FIs mergers orientations of diversification and focus create more value for shareholders (in the immediate announcement window and several months afterward) and/or generates better cash flows, profitability and less credit risk.

**Design/methodology/approach** – This study examines FIs merger effect on bidders' shareholder's value and on their observed performance. This examination deploys three techniques simultaneously: a) an event study analysis, to estimate and calculate abnormal returns (ARs) and cumulative abnormal returns (CARs) in the narrow windows of the merger announcement, b) buy and hold event study analysis, to estimate ARs in the wider window of the event, +50 to +230 days after the merger announcement and c) an observed performance analysis, of financial and capital efficiency measures before and after the merger announcement; return on equity, liquidity, cost to income ratio, capital to total assets ratio, net loans to total loans, credit risk, loans to deposits ratio, other expenses and total assets, economic value addition, weighted average cost of capital and return on invested capital. Deal criteria of value, mega-deals, strategic orientation (as in Ansoff (1980) growth strategies), acquiring bank size and payment method are set as individually as control variables.

**Findings** – Results show that FIs mergers destroy share value for the bidding firms pursuing a market penetration strategy. Market development and product development strategies enable shareholders' value creation in short and long horizons. Diversification strategies do not influence bidding shareholders' value. Local bank to bank mergers create shareholders' value and enhance liquidity and economic value in the short run. Bank to bank cross border mergers create value for bidders' in the long term but are associated with high costs and higher risks.

**Originality/value** – A significant advancement over the current literature is in assessing mergers, not only for bank bidders but also for the three pillars FIs of the financial sector; banks, real-estate companies and investment companies mergers. It is an improvement over current finance literature because it deploys two different strategies in the analysis. At a univariate level, shareholder value creation and market reaction to merger announcements are examined over short (–5 or +5 days) and long (+230 days) windows of the event. Followed by regressing, the resultant CARs and BHARs over financial performance variables at the multivariate level.

**Keywords** Banks, Acquisitions, Economic development: financial markets, Financial institutions and services, Event studies, Shareholder value, Financial crisis impact, Ring-fencing, Diversification strategies, Economic value addition, Event study and buy and hold methods

**Paper type** Research paper



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## 1. Introduction

Despite the limitations put in recent financial regulations, on diversification and conglomeration through ring-fencing, financial institutions (FIs) are still diversifying and benefiting from regulatory arbitrage and immunity through mergers.

Between the great depression in the 1930s and the aftermath of the 2007-2009 financial crisis, there have been waves of financial stress followed by tightening regulations, then innovations to break those out followed by deregulations. The recent financial crisis (2007-2009), has led regulators to prohibit several growth strategies and FIs diversification initiatives. Increasing capital buffers and limiting FIs ability to diversify through ring-fencing were the main tools. However, quite recently, several FIs expressed discontent with the recent regulation because of their profits draining criteria. [Hoeing \(2018\)](#) documents a bill to the US Congress that permits banks to deduct cash held on behalf of clients from the calculation of leverage. Doing so would lower the amount of capital the banks need as buffers and allow them to yield more cash to shareholders in the form of dividends and share buybacks. Such moves are expected to grow further in an attempt to repeal many of the 2012-2015 financial regulations.

The renewed debate on optimal bank structure floats two different “diversification hypotheses”:

- H1. Bank diversification allows banks to diversify risk and enable generating economies of scope and scale and increased efficiencies through cost-saving and revenue enhancements ([Houston et al., 2001](#); [Vennet, 2002](#); [Hirtle and Stiroh, 2007](#)); and
- H2. Bank diversification increases systemic risk ([Berger et al., 2012](#)) and decreases efficiency and creates negative economies of scope ([Laeven and Levine, 2007](#); [Stiroh and Rumble, 2006](#); [Gambacorta and Rixtel, 2013](#)).

Therefore, this study uses the product/market development matrix ([Ansoff, 1980](#)) to examine the diversification theory of FIs, on the relative merits of how the strategic orientation of mergers impact bidders' shareholder's value, annual performance and firms' economic value.

The contribution of this study feeds into the strand of diversification vs focus or “ring-fencing” scholarly and policy debate. That is, by identifying what types of activities/products are more likely to create shareholder value for FIs, and banks at their forefront. We examine how FIs have diversified or focussed their activities and geographical presence, and the impact of each orientation on bidders shareholders' value and year-end performance. This study provides an improvement over current finance literature because it deploys two different strategies in the analysis. At a univariate level, we examine the shareholder value creation and market reaction to merger announcements over the short and long horizons of the event. Followed by regressing the resultant cumulative abnormal returns (CARs) and buy and hold abnormal returns (BHARs) over financial performance variables at the multivariate level. Namely, the methodology of the event study is used to calculate abnormal returns (ARs) (CARs and BHARs), and the observed performance strategy that monitors FIs financial ratios from two years before the merger to two years after.

The rest of the paper proceeds as follows: Section 2 provides the literature review and the motivation of the study, Section 3 outlines the methodological approach and data, Section 4 analyses results and Section 5 concludes.

## 2. Financial institutions mergers: a literature review

[Rhoades \(1994\)](#) argues that event studies in that same period yield mixed results. Generally, there are positive ARs to targets and negative or no ARs for bidders upon the announcement

of a merger and acquisition (M&A) deal; regardless of the geographic and chronologic spans of these studies. Consistently, [Kwan and Laderman \(1999\)](#), surveying the US bank consolidation studies published between 1974 and 1998, find similarly mixed results. Their analysis focusses on the effects of expanding banking powers to include securities and insurance activities in addition to banks engaging in real estate activities. [Kwan and Laderman \(1999\)](#) conclude that although bank diversification into securities and insurance activities is more profitable and provides diversification benefits, it is riskier to the portfolio of banks.

[Amel et al. \(2004\)](#) present a summary of studies conducted between 1990 and 2001 on commercial banking *vis-à-vis* universal banking and financial conglomeration. They conclude that commercial bank M&As do not, on average, generate significant shareholder value, and it does not improve cost and profit efficiencies. [Amel et al. \(2004\)](#) suggest that there is no clear evidence on how shareholder value adjusts in response to M&As. This result supports the argument presented by [DeYoung et al. \(2009\)](#), in their review of an FI M&As in the post-2000 literature; suggesting that, there are not enough studies that examined the performance of universal banking and FIs' conglomeration attempts rigorously, before and after mergers.

Hence, there exists a theoretical inconclusiveness on the FI structure that can provide adequate and sustainable wealth maximisation; the diversified, universal and conglomerate or the focussed structure. This ambiguity also stems from the empirical evidence on how markets react to different types of bank M&As, especially when stability is seen through wealth maximisation improved profitability.

[Beitel et al. \(2004\)](#), conclude that stock markets prefer focussed M&A transactions over diversified ones in Europe. Target shareholders receive higher returns when the deal is more diversifying, while bidders are more successful in the activity focussed, and geographically focussed transactions. Targets seem to create more value in cross-border transactions. Expected performance following an FI merger plays a vital role too; risk reduction potential through diversification, profit and cost efficiencies (cost-to-asset-ratio, returns on assets and equities). [Delong \(2001b\)](#) examines the differential in stock market reactions to US bank diversification and focus announcements. Results emphasise on the positive response of stock markets towards deals that tend to focus, both activity and geography, while the other types of M&As do not create value. [Williams and Liao \(2008\)](#) and [Bellotti and Williams \(2008\)](#) examine emerging markets cross-border bank M&A deals that took place between 1998 and 2005. They find value creation and significant ARs pattern for target banks, value destruction for bidder banks, but not if the activity is focussed. These results contradict with [Cybo-Ottone and Murgia \(2000\)](#), who investigate market reaction to European FIs M&A took place between 1988 and 1997. They show that European financial market positively appreciates bank consolidations that aim at focussing activities and those that diversify towards insurance activities only. The combined performance of both bidders and targets is statistically significant for those deals. However, bank diversification towards securities firms or foreign institutions results in zero or negative returns for bidders, and narrow positive with lower significance for targets. [Delong \(2001a\)](#) and [Delong \(2003\)](#) confirm these results are valid in US bank mergers during 1991-1995 period. Their results support the assumption that markets reward mergers that focus their geography and activity and can enhance the long-term performance of banks and FIs.

[Amihud et al. \(2002\)](#) and [Beitel et al. \(2004\)](#) examine European financial markets mergers. They report that the effects of cross-border mergers on returns of acquiring banks are significantly negative. [Beitel et al. \(2004\)](#) propose that activity focus and geographic focus significantly drive M&As and that high diversification impacts negatively the value

creation for the bidding FIs. They argue that, from a combined point of view, the diversification hypothesis cannot be supported for European bidding banks and that non-diversifying transactions significantly create more value than diversifying transactions. [Campa and Hernando \(2006\)](#) diverge significantly from these results. Their analysis of 244 bank merger deals in the European countries (EU15) reports having lower excess returns for targets when the target is cross-border. This outcome contradicts with [Lepetit et al. \(2004\)](#), who confirms the existence of a positive and significant increase in value for target banks among all deals. However, they find positive and significant market reaction exists in cross-product diversification and geographic specialisation but not activity-focus deals.

In the USA financial market, [Fields et al. \(2007\)](#) report positive and significant ARs for banks bidding for a bancassurance merger. This positivity further extends to finding low risk transmitted from insurance targets to bidding banks. Results coincide with the international evidence provided by [Dontis-Charitos et al. \(2011\)](#) international evidence. [Dontis-Charitos et al. \(2011\)](#) argue that bank-insurance ventures sharing the same language tend to reap positive excess because they interrelate via similar cultural, trade practices, business ethics and legal backgrounds. This analogy is consistent with [Ekkayokkaya et al. \(2009\)](#) conclude that diversifying deals are value-enhancing and remain unaffected by the introduction of the euro currency, while focussed bids generated losses in the post-euro introduction phase. [Chen and Tan \(2011\)](#) confirm the same for the European market, FIs mergers. Positive CARs are observed for bidders, and two factors contributed to this; relative deal size and being a serial acquirer.

### 3. Data and methodology

We deploy a descriptive, correlation and quasi-experimental research design. This approach enables the construction of a panel of immediate and medium-term variables of impact and performance. This approach contributes to identifying the market product developing strategy that creates the best value for shareholders and for merging firms. The market product development strategies are scaled over the [Ansoff's \(1980\)](#) matrix of:

- market penetration, where an FI merges with an FI that conducts the same business in the same jurisdiction;
- market development, where an FI merges with another FI that conducts the same business in a different jurisdiction;
- product development, where an FI merges with another FI that conducts a different portfolio in the same jurisdiction; and
- diversification (or conglomeration in FIs terminology), where an FI merges with another FI that conducts a different portfolio in a different jurisdiction.

#### 3.1 Data

The data set comprises publicly traded FIs M&As, that took place between 1992 and 2018. Where the merger leads the acquiring FIs to increase their existing ownership in the target FIs from the range of 0-20 per cent targeting the 51-100 per cent range. A significant advancement over the current literature is in assessing mergers, not only for bank bidders but also for the three pillars institutions of the financial sector. Therefore, we examine mergers where bidders and targets are a FI that acquired another FI (insurance, real estate or investment companies). These criteria make it the most comprehensive data set and most accommodating among studies that explored the impact of bank M&As on shareholders' and firms' values simultaneously ([Table I](#)).

Stock prices of FIs institutions are procured from Bloomberg using Bloomberg industry classification systems (BICS) ticker code of FIs that took part and completed an M&A deal. Deal size is set to be greater than or equal to US\$100m because smaller transactions are usually done by specialised boutique firms, where ambiguity of payment and reporting methods increases (Beitel and Schiereck, 2001), and deals that are over \$100m are likely to have high “institutional presence” in deal commissioning and negotiation (John *et al.*, 2014). The following tables provide a summary of the total number of deals and respective total values and deals distribution of the sample over the selection criteria (Table II).

### 3.2 Methodology

This study examines FIs merger effect on bidders' shareholder's value and their observed performance. This examination deploys three techniques simultaneously; an event study analysis, a buy and hold event study analysis and observed performance analysis. Deal criteria, strategic orientation (as in Ansoff (1980) growth strategies), acquiring bank size and payment methods are set individually as control variables.

Year	Value in US\$ million	No. of deals	Region	Value in US\$ million	No. of deals
1995	2,008.35	1	North America	814763.23	553
1996	5,218.69	4	Australasia	389439.44	333
1997	9,754.37	2	Africa	8104.87	22
1998	208,155.3	43	Europe	816281.88	517
1999	122,661.52	61	Latin America	56171.65	60
2000	98,842.01	61	<i>Total</i>	<i>2084761.07</i>	<i>1485</i>
2001	115,484.31	81			
2002	49,501.55	55			
2003	129,959.35	88			
2004	129,990.48	90			
2005	132,377.57	90	<i>Geographic orientation</i>	<i>Value in US\$ million</i>	<i>Number of deals</i>
2006	223,071.92	141	Intrastate US	206,053.1	162
2007	172,871.08	113	Cross-border	792,906.83	741
2008	105,032.38	64	Local	630,031.17	351
2009	46,797.24	49	Cross-state US	455,769.97	231
2010	94,645.46	64	<i>Total</i>	<i>2,084,761.07</i>	<i>1,485</i>
2011	39,764.96	37			
2012	38,010.28	46			
2013	44,341.08	65			
2014	72,453.88	88	<i>Strategic orientation</i>	<i>Value in US\$ million</i>	<i>Number of deals</i>
2015	107,213.03	77	Market penetration	1,228,786.97	697
2016	82,627	82	Product development	63,067.27	47
2017	44,963.22	74	Market development	703,280.43	601
2018	9,016.04	9	Diversification	89,626.4	140
Total	<i>2,084,761.07</i>	<i>1,485</i>	<i>Total</i>	<i>2,084,761.07</i>	<i>1,485</i>

**Notes:** This table shows descriptive statistics of the data set sample. It shows distribution of number and monetary value of deals over the years from 1995 to 2018 (no deals met the threshold of US\$100m between 1992 and 1994). It also shows the distribution over the main regions of North America, Australia, Latin America, Europe and Africa. The geographic orientation panel differentiates between the US mergers and rest of the world mergers, and between intrastate and cross-state mergers in the USA. Strategic orientation panel shows high popularity of market penetration and market development strategies of FIs mergers, over diversification

**Table I.**  
Descriptive statistics  
of values distribution  
of FIs' mergers

JFEP 12,4	Product orientation	Value in US\$ million	No. of deals
500	Banks-banks	1,187,129.79	657
	Banks-insurance	27,334.31	30
	Banks-real estate	30,957.28	54
	Banks-investment company	2,547.23	9
	Insurance-banks	31,675.68	12
	Insurance-insurance	489,376.11	293
	Insurance-real estate	10,002.22	38
	Insurance-investment company	10,938.51	4
	Investment company-banks	2,660.87	3
	Investment company-insurance	14,009.31	5
	Investment company-real estate	5,234.86	8
	Investment company-investment company	5,641.76	10
	Real estate-bank	0	0
	Real estate-insurance	0	0
	Real estate-real estate	249,919.74	338
	Real estate-investment company	17,333.4	24
	Total	2,084,761.07	1,485

**Table II.**  
Descriptive statistics  
of the number of  
deals distribution of  
FIs' mergers

**Notes:** This table shows descriptive statistics showing the distribution of deal numbers and values of FIs mergers examined over the product/activity orientation of the acquirers and targets. Deals, where a bank is the bidder, a total of 750 deals with 50 per cent of the value of all deals. Adding deals where banks were another party of the deal would make total number of mergers with a bank in the deal above 51 and more than 61 per cent value

*3.2.1 Event study; market perception.* Following Dolley (1933) and Ball and Brown (1968)[1], we use the event study methodology to FIs wealth maximisation through shareholders' value by measuring firms' ARs. ARs are the deviation of actual stock returns from expected stock returns, as a result of an event, to account for the impact of this event on firms' stock prices. These ARs represent the magnitude of shareholders' value maximisation (positive or negative) created following the event. Under the "agency problem" theory and the "hubris hypothesis", an intended M&A does not necessarily imply that the management aims to maximise shareholders wealth. In the context of this study, the event is the merger or acquisition announcements of FIs that took place between 1993 and 2018, and that is above US\$100m in deal value. *H0* states that markets are not affected by banks' M&A announcements. Alternative hypothesis *H1* testifies that markets are affected by banks M&A announcements, and enables measuring the magnitude of this effect to differentiate how various bidding and target FIs shares react towards various deals types of focussing and diversifying activities and/or geography.

Therefore, ARs  $AR_{i,t}$  for institution  $i$  at time  $t$  are the difference between its actual returns  $R_{i,t}$  and its expected returns  $E(R_{i,t})$  estimated using the market model that regresses ordinary least squares returns in the estimation window over the market  $M$  returns  $R_{M,t}$ :

$$AR_{i,t} = R_{i,t} - E(R_{i,t}) \quad (1)$$

Where:

$$R_{i,t} = \alpha_{i,t} + \beta_i R_{m,t} + \varepsilon_{i,t} \quad (2)$$

Hence:

$$AR_{i,t} = R_{i,t} - \hat{\alpha} - \hat{\beta} R_{m,t} \quad (3)$$

Then, aggregate ARs to find CARs to check for their magnitude and significance accept or reject the  $H_0$ .

In this study, the analysis is based on an estimation period of 200 trading days (-241 to +241) before the event announcement(s) ( $t = 0$ ), leaving 81 days (-40, +40) window for the event study period. Average ARs are then aggregated for each day in the event window using equation (4). This equation (4) aggregates the ARs for the  $N$  number of stocks to find the average AR at time  $t$  for every stock  $i$ :

$$AAR_t = \frac{\sum_{i=1}^N AR_{i,t}}{N} \quad (4)$$

Another aggregation takes place for average ARs over the  $t$  days in the event windows  $T$  to form the cumulative average abnormal return (CAAR) equation (5):

$$CAAR_T = \sum_{t=1}^T AAR_t \quad (5)$$

Expanding over the current literature is the utilisation BHAR to examine the merger impact on the acquirer's returns over the longer run. The buy and hold methodology uses geometric returns, rather than arithmetic returns in calculating the overall return over the event period of interest, allowing for compounding, whereas the CAR does not (Brooks, 2013). BHARs are the difference between the realised buy and hold return and the normal buy and hold return.

$$BHAR_{i(T_1, T_2)} = \prod_{t=T_1}^{T_2} (1 + R_{i,t}) - \prod_{t=T_1}^{T_2} 1 + E[R_{i,t}] \quad (6)$$

Then, mean BHARs would be:

$$\overline{BHAR}_{i(T_1, T_2)} = \frac{\sum_{i=1}^N BHAR_{i(T_1, T_2)}}{N} \quad (7)$$

The  $t$ -test is applied, in time series and cross-sectionally, to test for the statistical significance of the ARs using the following equation (8); where  $t_1$  and  $t_2$  are time references for the days of the window and count ( $t_1, t_2$ ) is the number of days in this window:

$$t - \text{stat} = \frac{CAR[t_1, t_2]}{\left(1/N^2 \sum_{i=1}^N \sigma_i^2\right)} \quad (8)$$

To handle any potential cases of normality in the distribution of ARs posed by event date clustering (Rezitis, 2008; Hernando *et al.*, 2009; Knapp *et al.*, 2006), the BMP Boehmer *et al.* (1991) test is applied:

$$BMP = \frac{SCAR_{t_1, t_2}}{\frac{1}{N^2} \sum_{i=1}^n \left( SCAR_{t_1, t_2} - (SCAR_{t_1, t_2})^2 \right)} \quad (9)$$

Where the standardised CAR is  $SCAR_{t_1, t_2} = \frac{CAR_{t_1, t_2}}{\sigma_{it}}$ , and  $\sigma_{it}$  is estimated by the market model as  $(t_2 - t_1 + 1)\sigma_{et}$ . Furthermore, nonparametric tests of Corrado (1989) and sign tests

are also used. These tests have the advantage that; they do not consider the ARs distribution. Using ranks neutralises the statistical effect (such as outliers, skewness, etc.) of ARs. Assuming that  $\overline{K_{it}}$  is the rank for bank  $i$  at time  $t$  and  $T$  is the number of observations for the estimation and event period, the average expected rank for bank  $i$  is  $\overline{K_i} = 0.5 + Ti/2$ . Hence, [Corrado \(1989\)](#) test  $C$  would be:

$$C = \frac{\frac{1}{N} \sum_{i=1}^N (K_{i0} - \overline{K_i})}{\sqrt{\frac{1}{T} \sum_{t=1}^T \frac{1}{N^2} \sum_{i=1}^N (K_{it} - \overline{K_i})^2}} \frac{1}{\sqrt{L}} \quad (10)$$

Furthermore, the significance test is conducted via the generalised sign (GS) test proposed initially by [Cowan \(1992\)](#). It is based on the ratio of positive CARs  $P_0^+$  over the event window. Under the null hypothesis, this ratio should not systematically deviate from the ratio of positive CARs over the estimation window  $P_{Est.}^+$ . As the ratio of positive CARs is a binomial random variable, the GS test statistics would be:

$$t_{GS} = \frac{P_0^+ - P_{Est.}^+}{\sqrt{P_{Est.}^+ (1 - P_{Est.}^+) / N}} \quad (11)$$

As BHARs are often positively skewed ([Barber and Lyon, 1997](#); [Kothari and Warner, 1997](#)), a skewness-adjusted  $t$ -test, developed by [Johnson \(1978\)](#) is applied.

$$T_{Skewness-Adjusted} = \sqrt{N} \left[ S + \frac{1}{3} \hat{\gamma} S^2 + \frac{1}{6N} \hat{\gamma} \right] \quad (12)$$

where:

$$S = \frac{\overline{BHAR}_{i(T_1, T_2)}}{\hat{\sigma} BHAR} \quad \text{and} \quad \hat{\gamma} = \frac{\sum_{i=1}^N [BHAR_{i(T_1, T_2)} - \overline{BHAR}_{i(T_1, T_2)}]^3}{N \hat{\sigma}^3 BHAR}$$

**3.2.2 Observed performance.** In an approach of “strategic performance” similar to the one adopted by [Chatterjee et al. \(1992\)](#), [Ramaswamy \(1997\)](#) and [Altunbas and Ibanez \(2008\)](#), we examine strategic variables of FIs and their changes from pre-merger to post-merger. The model links performance adjustment pre- and post-merger to a strategic indicator and a set of control variables that are likely to influence performance. Therefore, the concepts of strategic choices of the market and/or product development ([Ansoff, 1980](#)) assume that the major aspects of FIs strategic orientation can be seen in the resource allocation decisions that managements make. In particular, we examine the strategic features of FIs engaged in a merger with another FI that pursuit investment, insurance, commercial banking or real estate (property) as lines of business. Balance sheet, income statement and cash flow items are downloaded, using FIs tickers, from Thomson Reuters Datastream. Ratios of profitability, liquidity, credit risk, capital structure and efficiency and outputs of loans are then calculated for two and one year before the merger announcement, the year-end of merger announcement, and one and two years after merger announcement and completion.

The value creation of bank mergers is also examined through analysing economic value addition (EVA), which is a measure of a company’s financial performance based on the



residual wealth calculated by deducting its cost of capital from its operating profit and adjusted for taxes on a cash basis. EVA can also be referred to as economic profit, as it attempts to capture the true economic profit of a company. This measure was devised by management consulting firm Stern value management, originally incorporated as Stern Stewart and Co and published in the Journal of Applied Corporate Finance (Stern *et al.*, 1995). EVA measures the wealth a FIs creates (or destroys) each year. It is a company's after-tax profit from operations minus a charge for the cost of all capital used to produce those profits – not only the cost of debt but also the cost of equity as well. EVA is the incremental difference in the rate of return over a company's cost of capital. Essentially, it is used to measure the value a FI and banks generate from funds invested into it (Chen and Dodd, 1997; Kan and Ohno, 2012). This also contributes to examining if financial firms are “shareholder value-efficient” (Fiordelisi, 2007). If EVA is negative, it means the company is not generating value from the funds invested in the business. Conversely, a positive EVA shows an FI is producing value from the funds invested in it. Hence,

$$EVA_{t-1,t} = NOPAT_{t-1,t} - (IC_{t-1,t} * K_{t-1,t}^e) \quad (13)$$

Where:

NOPAT is the net operating profits (income) after-tax, IC = invested capital and  $K_{t-1,t}^e$  is the estimated cost of capital (Appendix).

Hence, the success of merger deals could be seen through other determinants that have well performed in several time terms after the deal. For instance, performance is examined 20 and 40 days after announcement through CAR, at year-end for the whole financial year performance, by comparison of post and pre-event year-end measures, sustainability growth rate and EVA. Table III below shows these variables and their specific codes.

ARs and observed performance are then panelled over regional and jurisdictional constructs to be robustly regressed. Robust regression helps avoid the inefficiency of least squares under fat-tailed non-normality and their significantly larger biases relative to robust regression coefficient estimators under bias inducing distributions of daily (fluctuating) calculated ARs (Maravina, 2012; Ramdani and Witteloostuijn, 2010; Hoechle, 2007). In addition to its advantage of allowing great flexibility in modelling differences in behaviour across individual cases and events. Hence, the robust regression model would be based on:

$$Abnormal\ Returns_{it} = Strategic\ Orientation'_{it}\beta + Performance'_{it}\alpha + \varepsilon_{it}$$

where the performance vector includes EVA, and:

$$Economic\ Value\ Addition_{it} = Strategic\ Orientation'_{it}\beta + Performance'_{it}\alpha + \varepsilon_{it}$$

where the performance vector excludes EVA but includes CAR and cumulating buy and hold abnormal returns.

#### 4. Results

The data set covers 1,485 FI mergers. Table IV below shows financial accounting data aggregated for all the 1,485 acquiring FIs. Panel A shows mean, median and standard deviation, while Panel B shows the change of these variables between the year of the merger

**Table III.**  
Data and accounting  
platforms; source  
identification codes

Variables	Labels	ID-codes	Sources
ROE	ROE – total (%)	WC08301	DataStream – Thomson Reuter's profitability ratio, annual and interim item
Liquidity	Liquid (current) assets/ total deposits	WC02201/WC03019	DataStream – Thomson Reuter. Liquidity ratio
Cost to income ratio	Cost (operating expenses)/ revenue (sales)	WC01051/WC01001	DataStream – Thomson Reuter – efficiency ratio
Capital to total assets ratio	Total capital/total assets	WC03998/WC02999	DataStream – Thomson Reuter – capital ratio
Net loans to total assets	Net loans/total assets	WC02276/WC02999	DataStream – Thomson Reuter – assets to liabilities (other FIs) to total assets
Credit risk	Loan loss provision/net interest revenues	WC01271/WC01076	DataStream – Thomson Reuter – credit exposure
Loans to deposits ratio	Customer loans/customer deposits	WC02266/WC03019	DataStream – Thomson Reuter – assets to liabilities and income efficiency
Other expenses to total assets	Other expenses/total assets	WC03069/WC02999	DataStream - Thomson Reuter – non-operating expenses to total assets
EVA	Economic value addition	Calculate NOPAT, calculate total invested capital (TC), determine a cost of capital (WACC) and calculate EVA = NOPAT – WACC% × (TC)	Bloomberg – WACC, ECON_VALUE_ADDED
WACC	Weighted average cost of capital	Multiply by 1 – corporate tax rate	Bloomberg – WACC
ROIC	Return on invested capital	NOPAT divided by invested capital current liabilities – including tax liabilities and accounts payable, as long as these are not subject to interest or fees – from total assets	Bloomberg – RETURN_ON_INV_CAPITAL

**Notes:** Shows accounting/financial and capital performance variables; and their sources, codes, formulae of calculation. Below are further notes on the data availability and what some data mean to different types of FIs: banks, insurance companies, investment companies and real estate firms. There also considerations of the variations of reporting standards in different jurisdictions and this has been adjusted for. CURRENT ASSETS – represents cash and other assets that are reasonably expected to be realised in cash, sold or consumed within one year or one operating cycle. Generally, it is the sum of cash and equivalents, receivables, inventories, prepaid expenses and other current assets. DEPOSITS – represents the value of money held by the bank or financial company on behalf of its customers. The item includes demand, savings, money market and certificates of deposit along with foreign office and deposit accounts. Excluded are securities sold under repurchase agreement. COST OF GOODS SOLD – if a breakdown of total operating cost of non-manufacturing companies is not available then it is treated as cost of goods sold. For utilities and service (financials) organisations, if there are no clear breakdown between cost of goods sold and selling, general and administrative expenses, the total amount is updated to cost of goods sold and noted that selling general and administrative expenses are included. Service organisations may refer to this as cost of services. REVENUES represents the total operating revenue of the company. TOTAL CAPITAL represents the total investment in the company. It is the sum of common equity, preferred stock, minority interest, long-term debt, non-equity reserves and deferred tax liability in untaxed reserves. For insurance companies' policyholders' equity is also included. TOTAL ASSETS represent the sum of total current assets, long term receivables; investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets. LOANS – represent the total amount of money loaned to customers after deducting reserves for loan losses. For banks; it includes but is not restricted to lease financing total non-performing assets (field 02287). For other financial companies; it includes but is not restricted to lease financing finance receivables. Provision for loan losses expense; represents losses that the bank or the company expects to take because of uncollectable or troubled loans. NET INTEREST INCOME represents the difference between the total interest income and total interest expense of the bank. CONSUMER and INSTALLMENT LOANS represent loans made to consumers. It includes but is not restricted to: auto loans home improvement loans credit cards home equity loans. OTHER EXPENSES (ACCRUED) represents those accrued expenses not included in accrued payroll, interest payable, dividends payable or income taxes payable

Performance variables	Panel A Overall – announcement year			Panel B Year –1 to year 0			Panel C Year –1 to year +1		
	Obs	Mean	SD	Mean	Median	SD	Mean	Median	SD
ROE	1,485	16.05	87.28	4.84	11.99	126.61	0.52	-0.09	136.8
Liquidity	710	7.33	105.1	2.46	0.0000	71.91	1.64	0.0000	56.5
Cost income ratio	1,417	4.88	73.81	-0.42	0.0000	18.51	-1.75	0.0000	48.37
Capital assets ratio	1,341	0.3000	0.2700	0.01	0.1800	0.09	0.01	0.0000	0.14
Net loans T. assets	1,399	2.46	24.18	-3.96	0.4600	146.81	-3.96	0.0000	139.97
Credit risk	709	0.1600	0.5000	0.01	0.1000	0.34	-0.05	0.0000	0.58
Loan to deposits	723	0.1700	0.5000	0.02	0.0900	0.45	0.04	0.0000	0.76
Other expenses to T. assets	1,374	34.68	462.74	3.32	0.0000	153.28	-5.98	0.0000	192.68
T. assets	1,485	2.30E+09	1.60E+10	2.00E+08	4.30E+07	8.30E+09	6.90E+08	4.10E+06	5.80E+09
EVA	1,114	-8,023.88	330,000	5,582.36	-168.74	500,000	-6,834.71	-18.53	370,000
WACC	1,114	6.71	2.61	0.05	6.36	1.56	4.32	0.06	136.7
ROIC	994	8.43	13.24	0.09	5.53	10.75	-0.02	-0.21	15.25

Variable	Panel D Year –0 to Year +1			Panel E Year –0 to Year +2		
	Obs	Mean	SD	Mean	Median	SD
ROE	1,485	16.05	87.28	-9.09	11.99	77.69
Liquidity	710	7.33	105.1	1.15	0.0000	30.06
Cost income ratio	1,417	4.88	73.81	-2.07	0.0000	44.81
Capital assets ratio	1,341	0.3000	0.2700	0.01	0.1800	0.09
Net loans T. assets	1,399	2.46	24.18	-0.4	0.4600	6.81
Credit Risk	709	0.1600	0.5000	-0.03	0.1000	0.66
Loan to deposits	723	0.1700	0.5000	0.01	0.0900	0.13
Other expenses to T. assets	1,374	34.68	462.74	-10.4	0.0000	178.76
T. assets	1,485	2.30E+09	1.60E+10	6.30E+08	4.30E+07	5.00E+09
EVA	1,114	-8,023.88	330,000	-18,000	-168.74	390,000
WACC	1,114	6.71	2.61	6.01	6.36	187.36
ROIC	994	8.43	13.24	-1.9	5.53	11.48

**Notes:** This table shows summary statistics of financial and accounting performance independent variables of acquiring FIs. Panel A summarises the variable for the overall sample for a number of observations, mean, standard deviation and median. Panel B shows the change of these variables the year before the merger to the year of the merger. Panel C shows how these variables adjusted between one year before merger announcement and one year following merger announcement. Panel D shows these variables adjustments between the year of the announcement (completion) and the following year

**Table IV.** Summary statistics of the financial performance of acquiring FIs in the years surrounding merger announcement

and the following one year and two years, and between one-year post-merger and one-year pre-merger. Over 64 per cent of FIs mergers are completed within the same year of the announcement, and around 35 per cent are completed the following year. Hence, presenting the change in financial performance between the year before the announcement and the years of announcement/completion (Year-0 and Year + 1).

Financial and accounting measures adjustments show, on average, improvements for acquiring FIs in the year of announcement. Except for the EVA, which are negatives with a large standard deviation. Suggesting further examination of how different mergers types' ad FIs create value through mergers. As over 99 per cent of deals are completed in the same year of announcement or the following year, Panel B provides a more realistic summary of financial performance. The comparison between the year before the merger announcement and the year of announcement (completion for 65 per cent of deals) shows; positive return on equity (ROE), enhanced liquidity and EVA. This proves the positive impact of mergers on FIs returns on equity and on invested capital, leading to creating economic value (adding). However, negative cost to income ratio reflecting cost deficiencies or income deterioration. Other expenses to total assets exhibit increase, however, not necessarily reflect an increase in expenses rather a decrease in total assets as a signal of fixed assets disposal because of consolidations. Panel D shows that all financial variables exhibit positive change a year after the merger, except for EVA, which returned to the negative position maintained in the year of the announcement. All the improvements are more stable (lower variations-st. dev.) with higher medians. This suggests further examination of the "shareholder value efficiency" (Fiordelisi, 2007), hence, the next stage of investigation examines shareholder's value at various time spans and in regression over financial/accounting indices.

#### *4.1 Shareholders value and financial institutions mergers*

Two years following the merger completion (35 per cent announcement), bidder's exhibit improvement in liquidity status and continued positive capital structure. However, bidding FIs appear to have deteriorated returns on equity, the cost to income ratio and by large economic value and total assets. Mainly reflecting, lower drive or failure, to create value or enhance efficiencies after two years from the merger. It remains imperative to differentiate over the control variables associated with FIs M&As; focus vs diversification, deal value, regions and jurisdictions and payment types.

Table V provides an analysis of how financial/accounting performance variables change in response to FIs merger announcements over deal types; diversification, market development, market penetration and product development.

Results show that market development through cross-border or cross-state deals provides the highest ROE in the same year of the merger, 31.5 per cent, followed by diversification at 15.93 per cent. Market penetration and product development have brought FIs negative ROE with  $-0.798$  and  $-10.388$  per cent, respectively. However, in the year following the merger, diversification continued to provide a positive ROE while market development turned to negative ROE (1.823 and  $-1.235$  per cent). Product development proved to be more profitable in the long run than in the short run and market development and market penetration (8.251 and  $-0.7549$  per cent). Return on invested capital (ROIC) follows a similar paradigm. Liquidity and cost to income ratio support market penetration and not any of the geographic diversification options. Market penetration proves to be cost-efficient, even a year on the merger.

Although the cost of capital appears with little variation among merger strategies, product development and market penetration deals can decrease capital costs faster than diversification and market development deals. Examining ROE and ROIC along with liquidity changes against the weighted average cost of capital (WACC) remits to theorises

Obs	ROE	ROF change		Liquidity	Liquidity change		Cost to income		Cost to income change		
		Year -1 to Year -0	Year -0 to Year +1		Year -1 to Year -0	Year -0 to Year +1	Year -1 to Year -0	Year -0 to Year +1	Year -1 to Year -0	Year -0 to Year +1	
140	12.99348	15.9313	1.823478	12.40909	-2.476257	-3.26129	5.980813	-0.5295595	-0.7697513		
601	12.94015	31.58397	-1.235294	2.933178	-1.181174	0.4473382	5.891161	-0.1574723	-0.5493128		
697	12.38531	-0.7980447	-0.7549162	23.94188	10.93816	-3.123584	22.41624	-3.926921	-7.071453		
47	0.7845452	-10.38818	8.251819	0	0	0	0.0307117	0.0009068	-0.0112243		
		<i>Capital to T. assets change</i>		<i>Net loans to T. assets</i>		<i>Net loans to T. assets change</i>		<i>Credit risk</i>		<i>Credit risk change</i>	
		Year-1 to Year-0	Year-0 to Year+1	Year-1 to Year-0	Year-1 to Year-0	Year-0 to Year+1	Year-1 to Year-0	Year-1 to Year-0	Year-0 to Year+1	Year-1 to Year-0	Year-0 to Year+1
140	0.1944692	0.0135278	-0.0063857	0.6437709	0.0004525	-0.0012213	0.1631746	0.032157	0.0063976		
601	0.167199	0.0010722	0.0029344	0.6190049	-0.003193	0.003489	0.1805913	-0.0096945	-0.0589171		
697	0.1656038	0.001973	0.0043871	0.6238279	-0.0030908	-0.0001197	0.1458591	-0.0143707	-0.0047038		
47	0.1861649	0.0011631	-0.0089763	0.6537592	0.0130678	0.0028392	0.2085839	-0.0060349	-0.0082386		
		<i>Loans to deposits change</i>		<i>Other expenses to assets</i>		<i>Other expenses to T. assets change</i>		<i>T. assets</i>		<i>T. assets change</i>	
		Year -1 to Year -0	Year -0 to Year +1	Year -1 to Year -0	Year -1 to Year -0	Year -0 to Year +1	Year -1 to Year -0	Year -1 to Year -0	Year -0 to Year +1	TAssetsChng_1_0	TACHng0_1
140	0.1295917	-0.0056473	-0.0227621	24.01444	-7.247932	0.2334675	5.24E+09	1.29E+09	7.58E+08		
601	0.1902568	-0.0145497	-0.0012566	26.52525	-18.16074	-6.218525	5.72E+09	8.90E+08	4.27E+08		
697	0.1182201	-0.0004184	-0.0039087	28.6438	-3.373951	13.09076	4.67E+09	4.88E+08	4.82E+08		
47	0.1722986	-0.0068372	-0.0414931	0.0285203	-0.0081884	0.0212141	2.20E+08	1.64E+07	2.28E+07		

(continued)

**Table V.**  
FIs' performance and  
performance change  
following different  
types of mergers

Table V.

Obs	ROE	ROE change		Liquidity	Liquidity change		Cost to income	Cost to income change	
		Year -1 to Year -0	Year -0 to Year +1		Year -1 to Year -0	Year +1 to Year +1		Year -1 to Year -0	Year +1 to Year +1
	<i>EVA</i>	<i>EVA change</i>		<i>WACC</i>	<i>WACC change</i>		<i>ROIC</i>	<i>ROIC change</i>	
		Year-1 to Year-0	Year-0 to Year+1	Year-1 to Year-0	Year-0 to Year+1	Year-1 to Year-0	Year-1 to Year-0	Year-0 to Year+1	Year-0 to Year+1
Diversification	140	7,307.259	28,226.97	5.951683	0.2134348	0.0434652	4.591244	-0.9431956	0.1658174
Market development	601	-9,175.638	-7,186.142	6.436445	0.2948912	0.0246199	5.465717	-0.4488228	-0.0781875
Market penetration	697	-4,143.285	1,448.484	6.485306	0.0327341	-0.0444676	5.449878	-0.3767324	-0.0167318
Product development	47	-458.4131	1,666.657	6.000182	-0.0175091	-0.3904546	1.242955	-4.386773	3.315464

**Notes:** This table shows FIs' performance and performance change following different types of mergers. These types of mergers are categorised of the strategic orientation of based on Ansoff's (1980) matrix of the market – product development. This means that FIs mergers will be diversification if the acquirer and target are structurally different and are in different jurisdictions. The same analogy follows for the rest of deals (see footnote on same page)

that; diversification and market development deals expand geographically and can provide higher returns but at a cost that is high and long-standing in debts and balance sheets. EVA exhibits positive means only for diversifying deals. However, comparing the change in from before merger to the year of the merger, EVA shows the highest deterioration in EVA for diversifying deals. Market development also exhibits negative EVA in year-1 to year-0 change. A year on the merger provides different mapping; diversification provides the highest EVA (28,226.97) followed market penetration (6,987.05). Market development mergers also improve EVA position a year on the merger, although remains negative. Product development appears to enhance economic value in the short run but destroys economic value a year after the merger. Hence, diversification (new products and new markets) and market penetration (existing products in existing markets) provide the most sustainable EVA, lower cost of capital and higher cost efficiency. Mitigating the time needed for mergers to realise potential returns and payback in scale and costs efficiencies.

Table VI below shows CARs, along with their significance testing and probabilities, segregated over deal types of product and geographic orientations. While Table VII shows BHARs and their significance over the same deal types.

Overall, FIs mergers destroy value for the bidding firms. CARs are all significant when tested over parametric and non-parametric significance tests, including the ones adjusting for normality of distribution. Market penetration mergers exhibit similar results. Diversification strategies do not appear to have a significant influence on acquiring FIs shareholder's value in the short horizon of the merger. However, results for market and product development appear not significant overall, they do exhibit positive CARs, and significant in the windows of (0, 0) and (-1, +3), respectively. This reaction is a realisation of the anticipated synergy from different types of deals and their values.

Table VII shows the long horizon event study results and the BHARs, also segregated over the various strategies that describe the FIs mergers. Results show overall positive and significant value creation in 50 and 80 trading days, following the merger announcement. Market development mergers exhibit positive and significant BHARs 50 days on merger announcement. Lowering the confidence threshold from 95 to 90 per cent increases the number of long-horizon windows and categories that show a significant reaction in BHAR to the merger announcement.

Therefore, bidding FIs destroy shareholder's value in the immediate effect of mergers announcement with clear evidence from focussed FIs mergers. However, in the longer run, product development mergers are more consistently value-creating than other consolidation strategies. Although diversification helps to diversify risk and sources of income, it could be seeking a too-big-to-fail status (Elsas *et al.*, 2010), and involves much higher risks (environmental, cultural and legal) (Berger *et al.*, 2013). This outcome justifies the positive perception in the short horizon event study but negative in the long run. Markets applaud product development. Positive and significant ARs in both short and long horizons. A result that reflects the high potential to enhance productivity, and benefit from economies of scale and strategic similarities. In addition to the economies of scope and efficiencies enhancement when combined with positive BHARs of market development and market penetration. Results contradict with the literature that elaborates on the lack of technical efficiencies (Laeven and Levine, 2007), and the opaqueness and brand identity loss and agency problems (Elyasiani and Wang, 2012) due to such mergers.

When segregating the data set over deal criteria, several exciting results surface. Megadeals, with a value of US\$10bn, appear to preserve more value for bidding FIs shareholders than those involved in a non-mega deal. Table VIII below shows that, although they both exhibit negative CARs in the prompt windows of 0, 0; -1, +1, +3 and +5 days,

**Table VI.**  
Short horizon CARs  
along with  
parametric and non-  
parametric  
significance tests

	Window (days)	CAAR	t-test time series	Prob.	t-test cross sectional	Prob.	Patell Z	Prob.	Boehmer <i>et al.</i>	Prob.	Corrado Rank	Prob.	Sign. test	Prob.
Overall	(0, 0)	-0.0029	-5.7172	0.0000	-3.2264	0.0013	-9.7470	0.0000	-4.6867	0.0000	-4.4647	0.0000	-2.8730	0.0041
	(-1, +3)	-0.0047	-4.0741	0.0000	-3.1035	0.0019	-5.6615	0.0000	-3.8177	0.0001	-3.7174	0.0002	-2.2396	0.0251
Diversification	(-1, +5)	-0.0055	-4.0331	0.0001	-3.3082	0.0009	-5.0859	0.0000	-3.6747	0.0002	-3.1432	0.0017	-2.3980	0.0165
	(0, 0)	0.0018	1.1240	0.2610	1.0449	0.2961	1.8960	<b>0.0580</b>	1.4709	0.1413	0.9197	0.3577	0.5220	0.6017
Product development	(-1, +3)	-0.0002	-0.0597	0.9524	-0.0720	0.9426	1.0826	0.2790	1.1056	0.2689	0.5915	0.5542	1.3863	0.1657
	(-1, +5)	0.0016	0.3731	0.7091	0.5754	0.5650	0.9224	0.3563	1.1307	0.2582	0.5765	0.5642	1.2134	0.2250
Market development	(0, 0)	0.0012	0.2946	0.7683	0.2879	0.7734	0.8627	0.3883	0.6072	0.5437	0.3783	0.7052	-0.0280	0.9777
	(-1, +3)	0.0126	1.3545	0.1756	0.9476	0.3434	1.9788	0.0478	1.0647	0.2870	0.1971	0.8438	0.2679	0.7888
Market penetration	(-1, +5)	0.0073	0.6658	0.5055	0.5886	0.5561	1.8423	<b>0.0654</b>	0.9404	0.3470	0.1142	0.9090	0.2679	0.7888
	(0, 0)	-0.0003	-0.3396	0.7342	-0.2515	0.8014	-2.5198	0.0117	-1.4391	0.1501	-0.2951	0.7679	-0.2477	0.8044
Market penetration	(-1, +3)	0.0000	0.0022	0.9982	0.0020	0.9984	-0.9780	0.3281	-0.7694	0.4416	-0.6249	0.5320	0.8310	0.4060
	(-1, +5)	0.0004	0.2054	0.8373	0.1899	0.8493	-0.3650	0.7151	-0.3003	0.7640	-0.0205	0.9836	0.3331	0.7390
Market penetration	(0, 0)	-0.0065	-8.7858	0.0000	-3.9622	0.0001	-12.9581	0.0000	-5.2941	0.0000	-6.0652	0.0000	-4.1856	0.0000
	(-1, +3)	-0.0108	-6.5484	0.0000	-4.3300	0.0000	-8.3369	0.0000	-4.9846	0.0000	-4.6500	0.0000	-4.7245	0.0000
	(-1, +5)	-0.0128	-6.6029	0.0000	-4.7118	0.0000	-7.9793	0.0000	-5.1932	0.0000	-4.3591	0.0000	-4.4165	0.0000

**Notes:** This Table shows the short horizon event study results; cumulative abnormal returns along with parametric and non-parametric significance tests. Overall, FIs mergers destroys value for the bidding firms, CARs are all significant when tested over parametric and non-parametric significance tests, including the ones adjusting for normality of distribution. Numbers in italic mark the significance level of t-tests to their left at 95% confidence level. Decreasing the confidence level to 90 per cent (prob. in bold) strengthen the position of positive cars in diversification and product developments deals for cars (0, 0) and (-1, +5). Coefficients marked with \*, \*\* and \*\*\* refer to the significance of abnormal returns at 90, 95 and 99 per cent confidence levels respectively



	Window (days)	BHAR	Posneg	Prob.	Skewness adjusted	p-value
Overall	CBHAR [-50, +50]	<b>0.0135</b>	704:734	0.0122	2.679	0.0074
	CBHAR [-50, +80]	<b>0.0126</b>	692:746	0.0388	2.172	0.0299
	CBHAR [-50, +110]	<b>0.0112</b>	692:746	<b>0.0831</b>	1.7885	<b>0.0737</b>
	CBHAR [-50, +140]	0.0078	681:757	0.2548	1.1652	0.2439
	CBHAR [-50, +200]	0.0104	684:754	0.2126	1.2858	0.1985
	CBHAR [-50, +230]	0.0115	687:751	0.2052	1.3282	0.1841
Market penetration	CBHAR [-50, +50]	0.0093	310:366	0.2415	1.2032	0.2289
	CBHAR [-50, +80]	0.0121	308:368	0.2019	1.3325	0.1827
	CBHAR [-50, +110]	0.0108	306:370	0.3021	1.0727	0.2834
	CBHAR [-50, +140]	0.012	315:361	0.2881	1.1033	0.2699
	CBHAR [-50, +200]	0.0163	316:360	0.2415	1.231	0.2183
	CBHAR [-50, +230]	0.0217	329:347	0.1668	1.5008	0.1334
Market development	CBHAR [-50, +50]	<b>0.0172</b>	300:282	0.0473	2.2812	0.0225
	CBHAR [-50, +80]	0.0137	287:295	0.1436	1.5858	0.1128
	CBHAR [-50, +110]	0.0094	283:299	0.3085	1.048	0.2946
	CBHAR [-50, +140]	0.0017	281:301	0.8604	0.1834	0.8545
	CBHAR [-50, +200]	0.0065	290:292	0.5695	0.5839	0.5593
	CBHAR [-50, +230]	0.0032	281:301	0.7829	0.2842	0.7762
Product development	CBHAR [-50, +50]	<b>0.0777</b>	27:19	0.0279	2.6687	0.0076
	CBHAR [-50, +80]	0.0486	29:17	0.1232	1.6436	0.1003
	CBHAR [-50, +110]	<b>0.0639</b>	31:15	0.0424	2.2277	0.0259
	CBHAR [-50, +140]	<b>0.0651</b>	25:21	0.0458	2.2504	0.0244
	CBHAR [-50, +200]	0.0374	22:24	0.2971	1.1087	0.2675
	CBHAR [-50, +230]	<b>0.0608</b>	23:23	0.1064	1.7379	<b>0.0822</b>
Diversification	CBHAR [-50, +50]	-0.0037	67:67	0.7681	-0.2843	0.7762
	CBHAR [-50, +80]	-0.0019	68:66	0.8991	-0.1129	0.9101
	CBHAR [-50, +110]	0.0028	72:62	0.8692	0.1761	0.8602
	CBHAR [-50, +140]	-0.0065	60:74	0.7092	-0.3664	0.7141
	CBHAR [-50, +200]	-0.0118	56:78	0.5813	-0.5268	0.5983
	CBHAR [-50, +230]	-0.0209	54:80	0.3409	-0.9241	0.3555

**Table VII.**  
Long horizon CARs  
along with  
parametric and non-  
parametric  
significance tests

**Notes:** This table shows the long horizon event study results and the BHARs CBHARs segregated over the various strategies that describe the FIs mergers. Overall, positive and significant value creation in 50, 80 and 110 trading days following the merger announcement. Market development mergers exhibit positive and significant BHARs 50 days on the merger announcement. Italic and bold highlighted figures are *t*-tests probability at confidence levels of 95 and 90 per cent, respectively

mega deals bidders exhibit 10 folds more value creation. However, insignificant, BHARs are all positive for bidding FIs. Nevertheless, mega deals can generate 10 more folds ARs in the long run than non-mega deals. Reflecting shareholders appreciation of the general capability of large deals to capitalise upon the actual size and reputation and geographical coverage of bidders and targets to enhance efficiency and drive profit and value. As a result of larger diversification benefits, stronger capital positions in addition to projected cuts to operating costs and costs of capital (Carow and Kane, 2002; Houston *et al.*, 2001; Kane, 2000).

FIs mergers that are paid by US\$ currency create significantly more value for bidders, in the short horizon than the ones paid for in euro and British Pound. Deals paid by other currencies (local currencies) tend to create value upon merger announcement when the rest of deals destroy value (windows [0, 0] and [-1, +1]). Table IX also shows that payment in bidders local currencies have a long-lasting value effect with BHARs being positive and significant until 230 days after the deal announcement.

Window	Mega deals			Non-mega deals		
	CAAR	<i>t</i> -test time series	Prob.	CAAR	<i>t</i> -test time series	Prob.
<i>(-40, +40)</i>	-0.011	-0.4651	0.6418	<i>2.1181</i>	450.0592	<i>0.0000</i>
<i>(0, 0)</i>	-0.0207	-7.8637	<i>0.0000</i>	-0.0024	-4.6161	<i>0.0000</i>
<i>(-1, +1)</i>	-0.0202	-4.4185	<i>0.0000</i>	-0.0031	-3.3683	<i>0.0008</i>
<i>(-1, +3)</i>	-0.0223	-3.7801	<i>0.0002</i>	-0.0042	-3.5592	<i>0.0004</i>
<i>(-1, +5)</i>	-0.0229	-3.281	<i>0.0010</i>	-0.005	-3.5916	<i>0.0003</i>
	BHAR	Skewness adjusted	<i>p</i> -value	BHAR	Skewness adjusted	<i>p</i> -value
<i>(-50, +230)</i>	0.0058	0.1636	0.8701	0.0117	1.3175	0.1877
<i>(-50, +200)</i>	0.0004	0.0125	0.9900	0.0107	1.2943	0.1956
<i>(-50, +170)</i>	0.0081	0.2407	0.8098	0.0097	1.282	0.1998
<i>(-50, +140)</i>	0.002	0.0591	0.9529	0.008	1.1648	0.2441
<i>(-50, +110)</i>	-0.0024	-0.1036	0.9175	<i>0.0116</i>	1.8123	<b>0.0699</b>
	<i>41 deals; US\$ 800,103.55 average value per deal US\$19,514.72m</i>			<i>1445 deals; US\$ 1,284,657.52m</i>		

**Table VIII.**  
Short and long  
horizon ARs and  
the effect of  
mega mergers

**Notes:** This table shows the short and long Horizon event studies results showing CARs and BHARs and their relevant *t*-statistics, segregating mega mergers deals (combined total assets value is greater than or equal US\$10bn) and non-mega deals. Italic shadowed probabilities refer to the significance of ARs at 95 per cent confidence, and bold ones are at 90 per cent confidence. The number and value of deals under each category are appended at the end of the relevant column. Frequency and sampling weights are set to be countries (CountryNum)

Payment type (method) also shows a significant association with shareholders value effect of FIs mergers. Table X shows little to non-significant adjustment in shareholders' value when the deal is paid for by "stock and debt", "cash, stock and debt" and when the payment type is "undisclosed". However, when the deal is paid for using "cash" the short and long-horizon effect is significant and positive, from announcement windows to +200 and +230 days windows. Evidencing a clear preference of shareholders to this type of deals because cash payments for such large transactions reflect the bidder's adequacy and liquidity, which enables FIs to face any future challenges, resulting from or not resulting from the decision of the merger. Furthermore, the literature suggests that "cash" in itself as a medium of payment for merger deals is interpreted as good news, opposite to when it is "stock" (Franks *et al.*, 1991; Travlos, 1987).

When the merger is paid by "stock" or "cash or stock" shareholders value resembles the mainstream reaction known from bidders' shareholders in FIs mergers, negative small magnitude CAR. However, deals with these types of payments sustain negative shareholders value to the long horizon too with negative insignificant BHARs.

The 2007-2011 financial crisis seems to have influenced shareholders values of bidding FIs in M&As. Deals that took place before the crisis confirm the literature of negative ARs in short horizons and positive ARs in long horizons. The crisis appears to have a long-lasting negative effect on shareholders' value. BHARs during the financial crisis were consistently negative and 4-7 times more in magnitude compared to the same windows before the crisis. Table XI also shows shareholders value has improved in response to FIs mergers from the beginning of 2012. ARs in the short horizons are either positive or negative, but 3-5 folds less compared to ARs during the crisis. Moreover, ARs in the long horizon turned to become all positive with significant 2-4 folds greater than before the crisis.

Figure 1 shows the timeline of financial performance variables means; during before, during and after the financial crisis. Towards the end of 2007 and the beginning of 2008,

Window	USD			Other currencies (local)			Euro			GBP		
	CAAR	<i>t</i> -test time series	Prob.	CAAR	<i>t</i> -test time series	Prob.	CAAR	<i>t</i> -test time series	Prob.	CAAR	<i>t</i> -test time series	Prob.
(-40, +40)	<b>4.6107</b>	751.1014	0.0000	-0.003	-0.3115	0.7554	-0.005	-0.4455	0.6560	<b>-0.031</b>	-1.9555	<b>0.0505</b>
(0, 0)	<b>-0.0084</b>	-12.2967	0.0000	<b>0.0037</b>	3.4231	0.0006	-0.0012	-0.9785	0.3278	-0.0008	-0.4379	0.6615
(-1, +1)	<b>-0.0108</b>	-9.1004	0.0000	<b>0.0048</b>	2.5357	0.0112	-0.0006	-0.2987	0.7652	-0.0002	-0.0776	0.9381
(-1, +3)	<b>-0.0111</b>	-7.2482	0.0000	0.0027	1.0991	0.2717	-0.0034	-1.2109	0.2260	0.0011	0.2704	0.7869
(-1, +5)	<b>-0.0111</b>	-6.1117	0.0000	0.0015	0.5213	0.6022	<b>-0.0064</b>	-1.9543	0.0507	0.0021	0.4485	0.6538
	BHAR	Skewness adjusted	<i>p</i> -value	BHAR	Skewness adjusted	<i>p</i> -value	BHAR	Skewness adjusted	<i>p</i> -value	BHAR	Skewness adjusted	<i>p</i> -value
(-50, +230)	-0.0086	-0.7088	0.4784	<b>0.0532</b>	3.0401	0.0024	-0.007	-0.3414	0.7328	0.0116	0.4881	0.6255
(-50, +200)	-0.0117	-1.0265	0.3046	<b>0.049</b>	3.0047	0.0027	-0.0024	-0.1113	0.9114	0.0208	0.846	0.3975
(-50, +170)	-0.0115	-1.0939	0.2740	<b>0.0458</b>	3.0305	0.0024	0.0042	0.2615	0.7937	0.0069	0.321	0.7482
(-50, +140)	-0.017	-1.9165	<b>0.0553</b>	<b>0.0446</b>	3.2668	0.0011	0.0087	0.5393	0.5897	0.0088	0.4288	0.6681
(-50, +110)	-0.0151	-1.7752	<b>0.0759</b>	<b>0.0477</b>	3.757	0.0002	0.015	1.0036	0.3156	0.0155	0.8066	0.4199
		651 deals; US\$895,498,222m			453 deals; US\$498,484.17m			264 deals; US\$403,953.93m			117 deals; US\$186,823.75m	

Notes: This table shows the short and long horizon event studies results showing CARs and BHARs and their relevant *t*-statistics, segregating deals where payments were made in US dollars, euro, British Pound (GBP) and other currencies that are bidders' local currencies other than US\$, euro, and GBP. Red shadowed probabilities refer to the significance of ARs at 95 per cent confidence, and green ones are at 90 per cent confidence. The number and value of deals under each category are appended at the end of the relevant column. Frequency and sampling weights are set to be countries (CountryNum)

Table IX. Short and long horizon ARs and the effect of the deal's currency

**Table X.**  
Short and long  
horizon ARs and the  
effect of the deal's  
currency

Merger announcement window	Stock				Cash				Cash or stock				Undisclosed			
	CAAR	<i>t</i> -test time series	Prob.	BHAR	Skewness adjusted <i>p</i> -value	Skewness adjusted	<i>t</i> -test time series	Prob.	CAAR	Skewness adjusted <i>p</i> -value	Skewness adjusted	<i>t</i> -test time series	Prob.	CAAR	Skewness adjusted <i>p</i> -value	<i>t</i> -test time series
(-40, +40)	-0.027	-2.6113	0.0090	3.9479	0.0000	620.1382	0.0000	-0.0256	-1.7462	<b>0.0808</b>	-0.0239	-1.5349	0.1248	-0.0239	-1.5349	0.1248
	-0.0102	-8.8729	0.0000	0.0002	0.0000	2.7759	0.0055	-0.0177	-10.864	0.0000	0.002	1.1387	0.2548	0.002	1.1387	0.2548
	-0.0112	-5.6065	0.0000	0.0002	0.0000	1.6671	<b>0.0955</b>	-0.024	-8.5141	0.0000	0.0032	1.0627	0.2879	0.0032	1.0627	0.2879
	-0.0146	-5.6767	0.0000	0.0016	0.0000	1.0403	0.2982	-0.0232	-6.3752	0.0000	0.0021	0.5467	0.5846	0.0021	0.5467	0.5846
	-0.0176	-5.8016	0.0000	0.0019	0.0000	1.0169	0.3092	-0.0229	-5.3286	0.0000	0.0021	0.4635	0.6430	0.0021	0.4635	0.6430
(-50, +230)	-0.0016	-0.0749	0.9403	0.0295	BHAR	Skewness adjusted	<i>p</i> -value	BHAR	Skewness adjusted	<i>p</i> -value	BHAR	Skewness adjusted	<i>p</i> -value	BHAR	Skewness adjusted	<i>p</i> -value
	-0.0032	-0.1623	0.8711	0.0297	0.0109	0.0009	0.0026	0.0026	0.0112	0.9856	0.0026	0.0112	0.9194	0.0026	0.0112	0.9194
	-0.0066	-0.368	0.7129	0.0313	0.0053	0.0098	0.7340	0.7587	-0.0076	-0.3398	-0.0076	-0.3398	0.7340	-0.0076	-0.3398	0.7340
	-0.0058	-0.3598	0.7190	0.028	0.0012	0.0019	0.9603	0.9603	-0.0214	-0.9827	-0.0214	-0.9827	0.3258	-0.0214	-0.9827	0.3258
	-0.0088	-0.6091	0.5425	0.034	0.0010	0.0167	0.4837	0.5146	-0.0147	-0.7003	-0.0147	-0.7003	0.4837	-0.0147	-0.7003	0.4837
367 deals; US\$953,552.4																
(-40, +40)	-0.0051	-0.0933	0.9256	0.0614	0.4644	0.7317	0.1712	-0.0006	-0.0721	0.9425	-0.0075	-4.99	0.0000	-0.0285	-2.0938	0.0363
	0.0148	2.4105	0.0159	-0.0128	0.1712	-1.3685	0.6343	-0.0112	-0.83	0.4065	-0.0101	-3.8783	0.0001	-0.0075	-4.99	0.0000
	0.028	2.6379	0.0083	-0.0077	0.6343	-0.4758	0.3124	-0.0075	-0.4319	0.6658	-0.0118	-3.5038	0.0005	-0.0101	-3.8783	0.0001
	0.0285	2.0839	0.0372	0.0211	0.102	1.012	0.3124	-0.0075	-0.4319	0.6658	-0.0118	-3.5038	0.0005	-0.0118	-3.5038	0.0005
	0.0129	0.7985	0.4246	0.0206	0.4045	0.8335	0.4045	-0.0193	-0.9348	0.3499	-0.0115	-2.8676	0.0041	-0.0115	-2.8676	0.0041
103 deals; US\$ 55,704.54																
(-50, +230)	0.0281	0.3056	0.7599	-0.2671	0.1530	-1.4291	0.1530	-0.1835	-1.0033	0.3157	-0.0329	-1.3183	0.1874	-0.0329	-1.3183	0.1874
	0.0513	0.4947	0.6208	-0.1797	0.3741	-0.8887	0.3741	-0.1869	-1.3373	0.1811	-0.0329	-1.387	0.1654	-0.0329	-1.387	0.1654
	0.0432	0.526	0.5989	-0.1757	0.3905	-0.8587	0.3905	-0.1242	-0.9458	0.3443	<b>-0.0389</b>	-1.8643	<b>0.0623</b>	-0.0389	-1.8643	<b>0.0623</b>
	-0.0019	0.0472	0.9624	-0.1844	0.2821	-1.0757	0.2821	-0.1719	-1.351	0.1767	-0.0285	-1.363	0.1729	-0.0285	-1.363	0.1729
	-0.0195	-0.11529	0.8785	-0.1263	0.2046	-1.2685	0.2046	-0.1551	-1.2592	0.2079	-0.0257	-1.2436	0.2137	-0.0257	-1.2436	0.2137
118 deals; US\$277,408.94m																
3 deals; US\$1,814.94m																

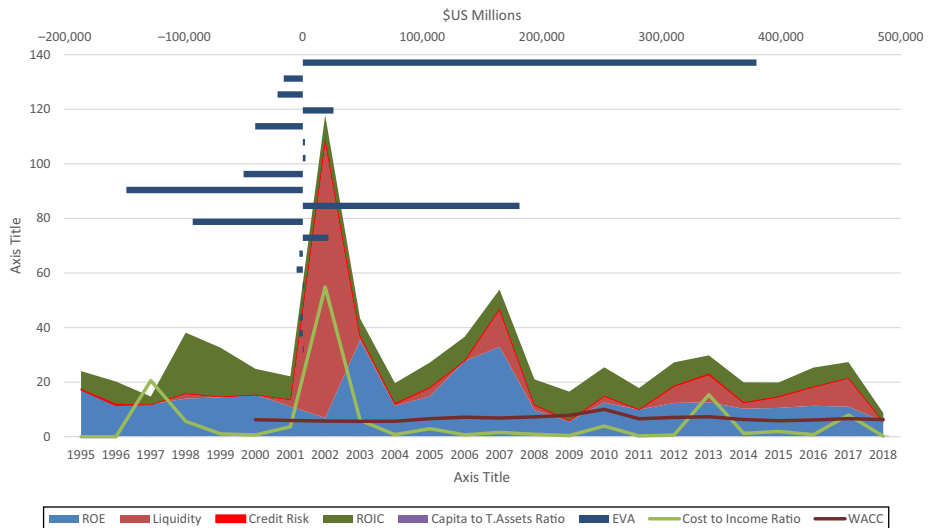
**Notes:** This table shows the short and long horizon event studies results showing CARs and BHARs and their relevant *t*-statistics, segregating deals where payments were made using "stock", "cash or stock", "cash and debt", "stock and debt", "cash, stock and debt", "cash and stock" or "undisclosed". Italic shadowed probabilities refer to the significance of ARs at 95 per cent confidence, and bold ones are at 90 per cent confidence. The number and value of deals under each category are appended at the end of the relevant column. Frequency and Sampling Weights are set to be countries (CountryNum)

Window	Before crisis			During crisis			After crisis		
	CAAR	<i>t</i> -test time series	Prob.	CAAR	<i>t</i> -test time series	Prob.	CAAR	<i>t</i> -test time series	Prob.
(-40, +40)	-0.0206	-3.5397	0.0004	-0.0213	-1.5542	0.1201	6.8809	<b>817.1345</b>	0.0000
(0, 0)	-0.0046	-7.1463	0.0000	-0.0004	-0.2552	0.7985	-0.0015	-1.5763	0.1150
(-1, +1)	-0.0067	-5.996	0.0000	-0.0006	-0.2164	0.8287	0.0003	0.1711	0.8642
(-1, +3)	-0.0082	-5.6931	0.0000	-0.0023	-0.6671	0.5047	0.0001	0.0532	0.9576
(-1, +5)	-0.0084	-4.9346	0.0000	-0.0043	-1.0635	0.2875	-0.001	-0.4153	0.6779
	BHAR	Skewness adjusted	<i>p</i> -value	BHAR	Skewness adjusted	<i>p</i> -value	BHAR	Skewness adjusted	<i>p</i> -value
(-50, +230)	0.0168	1.4138	0.1574	-0.0617	-2.8511	0.0044	0.0445	3.1158	0.0018
(-50, +200)	0.0205	1.8158	<b>0.0694</b>	-0.0721	-3.3432	0.0008	0.0403	3.103	0.0019
(-50, +170)	0.0183	1.7727	<b>0.0763</b>	-0.0643	-2.8911	0.0038	0.037	3.1206	0.0018
(-50, +140)	0.0159	1.7171	<b>0.0860</b>	-0.0613	-3.1782	0.0015	0.0334	3.0807	0.0021
(-50, +110)	0.0174	2.0816	0.0374	-0.0557	-3.1525	0.0016	0.0388	3.7505	0.0002
		786 deals; US\$1,345,549.04m			258 deals; US\$340,587.5m			441 deals; US\$3,98,624.53m	

**Notes:** This table shows the short and long horizon event studies results showing CAARs and BHARs and their relevant *t*-statistics, segregating FIs merger deals announcement (and completion) years over the three periods of before, during and after the 2007-2011 financial crisis. Coefficients marked with \*, \*\*, and \*\*\* refer to the significance of abnormal returns at 90, 95 and 99 per cent confidence levels respectively. Number and value of deals under each category are appended at the end of the relevant column. Frequency and Sampling Weights are set to be Countries (CountryNum)

**Table XI.**  
Short and long horizon ARs and the effect of the 2007-2011 crisis

**Figure 1.**  
Financial performance timeline of FIs involved in a merger between 1995 and 2018



there was a sharp decline in bidder's FIs liquidity, ROE and economic value. Credit risk has also culminated during this period but dipped in 2009; reflecting the lessened credit activities expected from banks because of the crisis.

Notably, returns on invested capitals during the 2007-2011 crisis were not much affected, and in harmony with credit risk and liquidity increase in 2007. An outcome that shows how bailout policies are enforced to keep the financial sector afloat through capital injections in defaulted banks (Kaufman, 2014; Dunn *et al.*, 2015). Distinctly, 2002 witnessed heightened liquidity, credit risk and ROIC but lower returns on equity; a representation of FIs policies in the wake of the dotcom bubble; through savings on operational costs and using the available funds (liquidity) in issuing loans (Petersen and Wiegelmann, 2014; Andriosopoulos and Yang, 2015).

*4.1.1 Mergers strategies and performance (nominal and operating).* Dissecting broader strategies into the industries of targets enables further insights. Tables XII and XIII summarise the association of the shareholders' value effect in several groups of focussed and diversified mergers, with financial performance in the year of the merger announcement (65 per cent completion) and the following year (98.9 per cent completion). Table XIV shows how mergers strategies influence operating performance, materialised in cost to income ratio, cost of capital and net operating profit. Overall, the focussed deals of bank-bank, real estate-real estate and insurance-insurance exhibit higher significance of the association between value creation and post-merger financial performance.

In the announcement year, local bank to bank mergers create shareholders value and increases their liquidity and economic value in the short run. Furthermore, these deals enable bidding banks to increase returns (ROE) from lending (loans to deposits) and decrease credit risk along with the long-run share value increase. However, this is at the cost of deteriorating ROIC, liquidity and economic value. Symmetrical performance association is witnessed in the year following the merger announcement year (Table XIII). When banks merge or acquire another bank in a different jurisdiction (country or state), shareholder value creation is more drifted towards the announcement year-end (+230 days).

Robust regression	Market development; banks-banks		Market penetration; banks-banks		Market development; real estate-real estate		Market penetration; insurance-insurance		Market penetration; real estate-real estate	
	Obs	65	Obs	160	Obs	61	Obs	39	Obs	39
Same year performance	CAR (-1, +3)	CBHAR (-50, +230)	CAR (-1, +3)	CBHAR (-50, +230)	CAR (-1, +3)	CBHAR (-50, +230)	CAR (-1, +3)	CAR (-1, +3)	CAR (-1, +3)	CAR (-1, +3)
ROF	-0.001470**	-0.3468653	0.0007821	2.045199**	0.0021258***	2.095653**	-0.0008509	-0.0002373	-0.0008509	-0.0002373
Liquidity	-0.0031857	-14.40768*	10.0000949**	-0.2865107**	-0.000794	-1.275178*	-0.004301**	0.0061209***	-0.004301**	0.0061209***
Cost to income	0.0025971	14.00848*	0.00006***	0.087789	-0.0000637	-1.307759***	0.0019636	0.0007373**	0.0019636	0.0007373**
Net loans to assets	-0.0565483	-26.7175	0.0247	54.37839*	-0.0894411	53.91683	0.0337452	0.0246423	0.0337452	0.0246423
Credit risk	0.0453678	43.58829	0.0209865	-30.88594***	0.0700079**	-40.27153*	-0.0113013***	0.1565389***	-0.0113013***	0.1565389***
Loan to deposits	0.0046081	6.434276*	0.0205675	-40.90026	0.0423713	-38.30496	-0.012658	-0.0907587	-0.012658	-0.0907587
Other expenses to assets	-0.0000233***	-0.0317352***	0.0001118	0.1732917	0.000572	1.730377***	0.0003024**	-0.00057915***	0.0003024**	-0.00057915***
EVA	0.0000002	0.0000325	0.000000307***	-0.0000545**	0.000000162***	-0.0001307*	-0.000000173	0.000000084***	-0.000000173	0.000000084***
WACC	0.0004873	3.884624	0.0016283	0.1354065	0.0021992	2.67792	-0.0041507	-0.008357*	-0.0041507	-0.008357*
ROIC	0.0019326	-2.11534	0.0011187	-2.519439***	-0.0029405	-9.393116**	0.0024671	0.0069195	0.0024671	0.0069195
_cons	0.0197869	19.41976	0.0222851	-27.63296	-0.0119943	-13.73741	-0.0073303	-0.0153292	-0.0073303	-0.0153292
	F(10, 54) 14.29	4.91	F(10, 149) 23.2	10.12	F(10, 50) 37.55	43.62	F(10, 28) 33.01	31.67	F(10, 28) 33.01	31.67
	Prob>F 0.000	0.000	Prob>F 0.000	0.000	Prob>F 0.000	0.000	Prob>F 0.000	0.000	Prob>F 0.000	0.000
	R <sup>2</sup> 0.1927	0.0593	R <sup>2</sup> 0.0529	0.0895	R <sup>2</sup> 0.1945	0.28	R <sup>2</sup> 0.3159	0.3168	R <sup>2</sup> 0.3159	0.3168
	Root	0.04444	Root MSE	0.04736	Root	0.05693	Root	0.04507	Root	0.04507
	MSE	84.806	MSE	0.04736	MSE	50.306	MSE	0.05591	MSE	0.05591

Notes: Shows robust regression analysis results of CARs and BHARs over the financial performance variables of the year of the merger announcement, segregating FIs merger by deal types of strategic orientation (diversification, market or product development and market penetration) and product orientation depending on acquirers and targets industries. Coefficients marked with \*, \*\* and \*\*\* refer to the significance of ARs at 90, 95 and 99 per cent confidence levels, respectively. See Table XVII. Frequency and sampling weights are set to be countries (CountryNum)

Table XII. Robust regression analysis; ARs, financial performance in the year of the merger announcement and strategic orientation

**Table XIII.**  
Robust regression  
analysis; ARs,  
financial  
performance in the  
year after the merger  
announcement and  
strategic orientation

Robust regression	Market development; banks-banks			Market development; insurance-insurance			Market penetration; banks-banks			Market penetration; insurance-insurance		
	Obs CAR (-1, +3)	71 CBHAR (-50, +230)	Obs CAR (-1, +3)	Obs CAR (-1, +3)	43 CBHAR (-50, +230)	Obs CAR (-1, +3)	Obs CAR (-1, +3)	161 CBHAR (-50, +230)	Obs CAR (-1, +3)	Obs CAR (-1, +3)	39 CBHAR (-50, +230)	
<i>A year post-merger performance</i>												
ROE	0.0028982***	0.781982	0.0006869	0.0347672***	0.1719623	-0.0001427	2.486423***	-0.0008073	-0.0008073	-1.315937		
Cost to income	-0.0062645	15.32467	0.0056897*	-13.82004*	-13.82004*	-0.0004219***	0.3667799***	0.0021624	0.000541	0.3954575		
Capital to assets	0.1433464**	-14.23463	-0.1933884	-142.9384	-142.9384	0.0738723	52.86665	0.0342149	0.0342149	-2.352534		
Net loans to assets	-0.0582309	-3.20035	-0.049972	-58.61119*	-58.61119*	0.0173525	20.95892	-0.1606381	-0.1606381	-40.48694		
Credit risk	0.0296996	75.30856	-0.0043892	-10.41328**	-10.41328**	0.038759	-49.27295	0.124828**	0.124828**	37.15029		
Loan to deposits	-0.0078122	-17.48053	-0.024253	16.72362	16.72362	0.0002321	-33.82771***	-0.0996576	-0.0996576	-66.99629		
Other expenses to assets	-0.0000195***	-0.0358986***	-0.0345183***	12.33046	12.33046	0.0000765***	-0.0307389	0.0003446*	0.0003446*	-0.0132524		
EVA	-1.44E - 08	0.0000322	0.000000375	-0.0005632**	-0.0005632**	0.00000264**	-0.0002066	-0.000000336	-0.000000336	0.0002213		
WACC	-0.003218	3.146886	0.0020048	0.4098839	0.4098839	0.0004137	-3.105825	-0.0005012	-0.0005012	-3.256336		
ROIC	0.0006336	-3.700579	-0.0035206	-3.819592	-3.819592	0.0001666	-1.608725	0.0055353	0.0055353	10.39938*		
_cons	-0.0189218	-1.460644	0.0458827	77.07224*	77.07224*	-0.0363499	-2.294048	0.0515072	0.0515072	-2.597803		
<i>F(10, 59)</i>	9.5	3.59	<i>F(11, 32)</i>	106.85	26.19	<i>F(11, 149)</i>	40.78	9.49	<i>F(11, 28)</i>	4.42		
<i>Prob&gt;F</i>	0.000	0.0007	<i>Prob&gt;F</i>	0.000	0.000	<i>Prob&gt;F</i>	0.000	0.000	<i>Prob&gt;F</i>	0.0007		
<i>R<sup>2</sup></i>	0.3921	0.0754	<i>R<sup>2</sup></i>	0.232	0.1725	<i>R<sup>2</sup></i>	0.1312	0.0582	<i>R<sup>2</sup></i>	0.2327		
<i>Root MSE</i>	0.0559	80.957	<i>Root MSE</i>	0.04981	51.144	<i>Root MSE</i>	58.449	0.04461	<i>Root MSE</i>	0.05368		

**Notes:** This table shows Robust regression analysis results of CARs and BHARs over the financial performance variables of the year after the merger announcement, segregating FIs merger by deal types of strategic orientation (diversification, market or product development and market penetration) and product orientation depending on acquirers and targets industries. Coefficients marked with \*, \*\* and \*\*\* refer to the significance of ARs at 90, 95 and 99 per cent confidence levels, respectively. Frequency and sampling weights are set to be countries (CountryNum)



Panel A		<i>No. of obs = 41,332</i>		CAR (-1, +3)		CBHAR (-50, +230)		Coefficient		<i>P &gt;  t </i>	
Equation											
CAR (-1, +3)											
CBHAR (-50, +230)											
		<i>Cost to income ratio</i>		Coefficient		<i>P &gt;  t </i>		Coefficient		<i>P &gt;  t </i>	
		EVA		-8.79E - 06		0.001		-0.01644		0.000	
		WACC		-7.84E - 09		0.000		-3.99E - 06		0.000	
		_cos		0.000121		0.315		-0.55812		0.000	
		_cos		-0.00704		0.000		5.543296		0.000	
		Parms		RMSE		<i>R<sup>2</sup></i>		<i>F</i>		<i>p</i>	
		4		0.057044		0.002		25.77397		0.000	
		4		51.88836		0.002		30.00813		0.000	
Panel B		<i>No. of obs = 1,406</i>		Multivariate regression; strategic orientation is product development		CAR (-1, +3)		Multivariate regression; strategic orientation is diversification		CBHAR (-50, +230)	
Equation											
CAR (-1, +3)											
CBHAR (-50, +230)											
		<i>Cost to income ratio</i>		Coefficient		<i>P &gt;  t </i>		Coefficient		<i>P &gt;  t </i>	
		EVA		0.014115		0.000		-0.00015		0.000	
		WACC		4.12E - 09		0.115		3.77E - 08		0.243	
		_cos		0.00318		0.000		0.00118		0.000	
		_cos		-0.02493		0.000		-0.01019		0.000	
		Parms		RMSE		<i>R<sup>2</sup></i>		<i>F</i>		<i>p</i>	
		4		0.042804		0.0365		17.68376		0.000	
		4		42.52219		0.2189		130.9617		0.000	
Panel B		<i>No. of obs = 19,496</i>		Multivariate regression; strategic orientation is market penetration		CAR (-1, +3)		Multivariate regression; strategic orientation is market development		CBHAR (-50, +230)	
Equation											
CAR (-1, +3)											
CBHAR (-50, +230)											
		<i>Cost to income ratio</i>		Coefficient		<i>P &gt;  t </i>		Coefficient		<i>P &gt;  t </i>	
		EVA		-1.6E - 05		0.000		0.000154		0.003	
		WACC		-5.73E - 09		0.008		-9.98E - 09		0.058	
		_cos		-0.00072		0.000		0.000867		0.000	
		_cos		0.00294		0.037		-0.01855		0.000	
		Parms		RMSE		<i>R<sup>2</sup></i>		<i>F</i>		<i>p</i>	
		4		0.063218		0.0024		15.5536		0.0134	
		4		48.8159		0.0053		34.60747		0.000	

**Notes:** Multivariate regression of operating performance components of economic value, cost of capital and operating cost. Panel A represents the overall significance of these variables' association with Flis' ARs upon merger announcement. Panel B presents the variation of this association over the strategic orientation of Flis mergers. The coefficients are in the first columns of every panel while *p*-values are in the fourth ones. Frequency and Sampling Weights are set to be countries (CountryNum)

**Table XIV.**  
Operating performance (measured by EVA, cost of capital and operating cost) and its association with Flis mergers and their strategic orientation



**Table XV.**  
Economic value  
addition and  
performance around  
merger  
announcements

Robust regression	Panel A			
	Cross-state US banks-banks Obs = 54	Bank-bank merger Latin America Obs = 13	Australasia banks-banks Obs = 19	Europe bank cross border Obs = 42
CAR (-1, +3)	20,237.11**	-468,409.5	429,415.7	1,965.034
CBHAR (-50, +230)	2.423524	206.2443**	-185.1926	40.71887**
ROE	-175.7424**	2,631.09*	-4,283.366**	-328.1574***
Liquidity	24.11002**	2,134,293**	-17,413.35	-11,717.31**
Cost to income ratio	-21.0164*	-26,000,000**	-35,565.96	-1,882.315
Capital to T. assets ratio	-7,293.322	327,336.2**	-553,307.5***	26,835.31**
Net loans to T. assets	8,651.614**	250,049.3***	-323,583.5***	-10,212.41
Credit risk	-1,630.95	-187,556.2**	141,990.6	-37,299.16***
Loan to deposits	-4,795.465	-51,466.13	208,700.1**	-5,853.8*
Other expenses to T. assets	7.504181	3,505,731*	107,852.5	8,451.358*
ROIC	161.8176	5,343.25*	4,221.176	4,162.659***
_cons	-2,650.029	-262,037**	292,014.9***	-3,266.464
<i>F(11, 42)</i>	1.41	0.00	36.48	<i>F(8, 1)</i>
<i>Prob&gt;F</i>	0.2052	0.00	0	<i>Prob&gt;F</i>
<i>R<sup>2</sup></i>	0.3559	1.00	0.9007	<i>R<sup>2</sup></i>
<i>Root MSE</i>	2693.5	3615.5	25786	<i>Root MSE</i>

(continued)

*Panel B*

	Cross state US real estate-real estate Obs = 36	Intrastate US real estate-real estate Obs = 26	Banks-Banks Europe Obs = 58	Banks-Banks Latin America Obs = 13
CAR (-1, +3)	-819.4283	-615.2755	1,932.645	-277,169
CBHAR (-50, +230)	-2.346906	4.173344	-9.923377***	99.03645**
ROE	-83.803***	12.35598	-34.08451	2037.822*
Liquidity	-1.844659	-17.87445*	-633.8743*	6,576,655***
Cost to income ratio	-3.094869**	2.650679	1,686.825	69,900,000***
Capital to T. assets ratio	-2,726.363	-8,254.57**	-5,135.221	184,041.3**
Net loans to T. assets	7.539856	-613.251	9,504.617**	170,526.9***
Credit risk	316.4703	-283.3951	14,383.16***	-113,479.2**
Loan to deposits	-2,617.614*	-1,371.432	2,066.031	-47,886.36
Other expenses to T. assets	4.503511	6.616352	-1,419.519	-34,700,000***
ROIC	-80.06304	-237.2255**	-907.7629***	1,374.69
_cons	1,639.581	3,035.749***	-4,131.989	-151,410.3**
	3.83	F(11, 14)	40.45	F(8, 1)
	0.0029	Prob>F	0.000	Prob>F
	0.5796	R <sup>2</sup>	0.8036	R <sup>2</sup>
	558.47	Root MSE	4811.7	Root MSE
				2165.6

**Notes:** Shows the Robust regression of EVA post-merger over the short and long horizons ARs and other financial accounting variables in the year of the merger. Coefficients marked with \*, \*\* and \*\*\* refer to the significance of ARs at 90, 95 and 99 per cent confidence levels, respectively. See Table XVII for elaborative regression of operational performance through Cost to income ratio, operating profit (NOPAT in EVA calculation) and cost of capital (WACC). Frequency and sampling weights are set to be countries (CountryNum)

**Table XVI.**  
Multivariate regression of CARs and BHARs over financial performance variables two years before the merger announcement

Robust regression	Diversification		Market development		Market penetration		Product development		Obs = 14 CBHAR (-50, +230)
	Obs = 35	Obs = 143	Obs = 143	Obs = 195	Obs = 195	Obs = 195	Obs = 195		
<i>Two years pre-merger performance</i>	CAR (-1, +3)	CBHAR (-50, +230)	CAR (-1, +3)	CBHAR (-50, +230)	CAR (-1, +3)	CBHAR (-50, +230)	CAR (-1, +3)	CBHAR (-50, +230)	
ROE	-0.00081	0.493893	0.0000333***	0.0122276***	0.000629	0.8304693*	-0.00413	4.243164	
Liquidity	-0.01235	-17.3819	0.000465	0.522244	-0.00054	0.433553	0.06619	-537.835	
Cost to income	-0.00192	-3.1823	0.000133	0.521256	-2E-05	0.084807	0.028862	170.9193	
Capital to assets	0.312825	196.7809	0.052442	43.53461	0.034268	-31.9674	-0.04836	80.88622	
Net loans to assets	0.06362	-50.0106	-0.04521	10.97076	0.000386	41.19885	-0.29034	-435.16	
Credit risk	0.04249	-31.245	0.017143	23.42489	-0.02308	-5.07881	-0.17824	-242.576	
Loan to deposits	-0.06048	-103.184	0.002186	0.573171	-0.02251	12.43426	0.169484	-358.238	
Other expenses to assets	0.004718	6.783879	-0.00014	-0.51602	0.000036	-0.03305	-0.05888	338.8598**	
EVA	-0.00000032*	-4.8E-05	2.22E-09	0.0000717***	-2.8E-08	0.000014	3.04E-07	4.43E-05	
WACC	-0.01009	2.988828	0.000597	0.790969	0.0027598*	0.768753	0.010925	24.67994	
ROIC	0.0100773*	0.16868	0.001529	-2.529476*	-0.00052	-0.854	0.0008335**	-0.6594336**	
_cons	-0.08153	-6.89873	-0.01519	1.074158	-0.02432	-31.3213	0.190577	156.5659	
<i>F(1, 23)</i>	2.4	218.68	216.93	15.31	F(11, 183)	1.01	0.85	F(10, 2)	
<i>Prob&gt;F</i>	0.0371	0.000	0.000	0.000	0.4357	0.588	0.000	0.000	
<i>R<sup>2</sup></i>	0.3226	0.0965	0.1136	0.0383	R <sup>2</sup>	0.0616	0.0439	R <sup>2</sup>	
<i>Root MSE</i>	0.04615	82.61	0.05287	67.306	Root MSE	0.04334	46.638	Root MSE	

**Notes:** Shows robust regression analysis results of CARs and BHARs over the financial performance variables of the Two years before the merger announcement segregating FIs merger by deal types of diversification, market penetration and product development. Coefficients marked with \*, \*\* and \*\*\* refer to the significance of ARs at 90, 95 and 99 per cent confidence levels, respectively

Mixed effect maximum likelihood	Acquirer is a bank		Banks-banks		Banks-insurance	
	Obs = 532 CAR (-1, +3)	Obs = 532 CAR (-1, +3)	Obs = 268 CAR (-1, +3)	Obs = 268 CBHAR (-50, +230)	Obs = 14 CAR (-1, +3)	Obs = 14 CBHAR (-50, +230)
Same year performance						
ROE	-0.000107	-0.0006445	-0.0006445	0.2825468	0.0007199	1.190023
Liquidity	0.0000318***	-0.0002066***	-0.0002066***	-0.1853883***	0.7017472***	-952.0654***
Cost to income	-0.0000221***	0.0002251***	0.0002251***	0.1939322***	-0.6231185***	839.3732***
Net loans to assets	-0.0251165***	-0.022541*	-0.022541*	16.07988	-0.1607536***	32.81271**
Credit risk	-0.0054364	0.0127069	0.0127069	-2.928893	0.1312541***	-238.3513***
Loan to deposits	0.0022413	0.0049707	0.0049707	-5.368608	0.0258868*	32.53
Other expenses to assets	-0.000013***	-0.0000213***	-0.0000213***	-0.0218421***	-0.4378624***	594.0668***
EVA	2.86E-09	1.42E-08	1.42E-08	-0.00000161	-0.000000771**	0.0005452***
WACC	0.00114	0.0018389	0.0018389	-0.1230434	0.0120207***	-4.895462
Wald $\chi^2$ (9)	73,356.88	76,740.62	76,740.62	64,996.22	0	0
Log pseudolikelihood	829,2175	424,0296	424,0296	-1491.71	33.82578	-64.4736
Prob > $\chi^2$	0	0	0	0	0	0

**Notes:** Country of acquirer clustered robust, mixed effect maximum likelihood regression analysis results of CARs and BHARs over the financial performance variables of the year of the merger announcement, segregating FIs merger by deal types of acquirer industry and deal orientation (diversification, market or product development and market penetration). Coefficients marked with \*, \*\* and \*\*\* refer to the significance of ARs at 90, 95 and 99 per cent confidence levels, respectively. N.B. GLM Gaussian distribution regression over the same clusters resulted similarly

**Table XVII.**  
Mixed effect maximum likelihood regression analysis of CARs and BHARs

Furthermore, value creation in the long horizon appears to be involving high costs (cost to income) and higher risks (loans to deposits and credit risk). Results in the year following the merger deal are also similar. It is most probably because of costs of cultural (language, brand and legal) and procedural (regulations and regulators and organisational culture) differences leading to diminishing value; faster than local deals and incurring more costs to adapt and implement consolidations following the merger.

Real estate bidders that merge with another real estate firm across the border (or state) create shareholders value and gain ROE and economic value, although at the cost of higher expenses in the long run. However, focussed real estate mergers appear to be more successful. They create shareholders value in the short horizon, and this value is accompanied by enhanced liquidity, decreased expenses and EVA. However, costs to income and credit risk appear to become higher. As real estate firms are not lending firms, the increase in credit risk reflects the debts through loans that real estate companies often operate with to finance operations (land acquisitions and developments). Insurance companies focussed mergers can create value in the short horizon post-merger, only at the expense of lower liquidity and higher expenses.

Table XIV shows that all mergers that create shareholder value (short and long) are able to enhance their operational performance. Particularly, operating costs and capital costs. This is emphasised through the negative cost to income ratio. However, this cost saving does not appear to be sustainable, as it comes at the expense of deteriorating net operating profit after tax (NOPAT) and economic gain (EVA). Panel B of same table proves variations exist pertaining to different strategies of mergers. Market penetration and diversification strategies support FIs cost to income reduction while product and market development do not. Essentially reflecting diversification of income sources benefits. Nevertheless, these benefits are short-run because opposite associations prevail when examining the economic value (and its NOPAT) and cost of capital.

*4.1.2 Shareholders value and economic value.* EVA captures the true actual economic profit of a firm. Furthermore, because of EVA's methodological importance in providing the net effect of business profits, we examine EVA in the post-merger year along with merger year ARs and other financial variables. This tactic enables us to test for "shareholders value efficiency" following [Fiordelisi \(2007\)](#) by examining EVA change from year-0 (merger) to year-1 (post-merger) relative to ROIC.

Table XIV (Panel A) shows that in banks-banks mergers economic value post-merger is driven largely by an expansion in loans (loans to T. Assets ratio) in North American and Australasian bidding banks. Shareholders value also drives long-run economic value for North American bank bidders. EVA is also negatively influenced by the large base of loans compared to deposits, hence, credit risk and low net loans to assets in Australasian bank focussed mergers.

Long run shareholders value, along with liquidity lower costs higher capital ratio and lower risks in the merger year, helps Latin American bank bidders gain economic value post-merger. For European bank mergers, the evidence is relatively mixed. Long-horizon shareholders value contributes to generating economic value for cross border bank mergers despite high capital to assets ratio and low ROE. Cross border bank mergers in Europe allow banks to decrease credit risk significantly and increase ROIC along with improving economic value. Particularly because diversity in bank loans enables betterment in credit risk strategy ([Altunbas and Ibanez, 2008](#); [Hagendorff et al., 2012](#)). However, examining the "shareholder value efficiency" theory shows that European bank-bank M&As decrease bidders shareholder value efficiency through negative returns on invested capital [[Table XIV \(Panel B\)](#)].

## 5. Conclusion

The financial sector has continuously experienced restructuring and reformation; either through re-regulation following crisis or deregulation following innovation. This synthetic cycle (Kane, 1981, 1977) can be alleviated when economic and political powers find the optimal FI structure that can sustain a permanent and idiosyncratic risk-return enhanced status. One way of arriving at such status is through consolidations. This study contributes to the renewed policy debate, especially following the 2007-2011 crisis, by examining the value creation effect of FIs mergers and their determinants.

Results encourage FIs to achieve growth through market and product development strategies because they enable value creation for shareholders both in the short and the long run. Local similar FIs mergers destroy value for the bidding firms pursuing, and diversification strategies do not appear to have a significant influence on acquiring FIs shareholders value both in the short and in the long run.

Policymakers and regulators are advised to consider and permit, the regional and jurisdictional adaptations of regulations and the adoption of local assessment techniques. This conduct helps tackle regulatory arbitrage and promotes elasticity for growth and economic value creation strategies.

## Note

1. Brown and Warner (1985) worked on making event study methodology more statistically valid through enhancing the rigor of models used and its significance testing (focussing on performance problems in monthly data and daily data separately that are also enhanced through Kothari and Warner (2007) by resolving methodology issues of events clustering, ARs aggregation and variances changing.

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Appendix

$$EVA_{t,t} = NOPAT_{t,t} - (CI_{t-1} * K_e)_{t,t}$$

$NOPAT_{t,t}$  = EBIT (1 – tax rate) +  
 + R&D Expenses  
 + Training expenses  
 + Operating Lease Expenses  
 + Loan loss provisions – Net charge-off  
 + Book tax provisions – Cash operating tax  
 + General risk provisions – Net charge-off

$CI_{t-1}$  = Book value of equity  
 + Capitalised R&D expenses<sup>(1)</sup>  
 + Capitalised training expenses<sup>(1)</sup>  
 – Proxy for amortised R&D expenses<sup>(2)</sup>  
 – Proxy for amortised training expenses<sup>(2)</sup>  
 + Proxy for the present value of expected lease commitments over time<sup>(3)</sup>  
 – Proxy for amortised operating lease commitments<sup>(3)</sup>  
 + Net Loan loss reserve  
 + Deferred tax credits  
 – Deferred tax debits  
 + General Risk Reserve

Where NOPAT is the Net Operating Profits after Tax, CI is the capital invested,  $K_e$  is the estimated cost of capital invested, EBIT is the Earning before interest and taxes, R&D is "Research and Development"

- (1) Capitalised R&D expenses and capitalised training expenses are obtained summing annual R&E expenses and training expenses, respectively, over a period of five years (e.g. Stewart, 1991 suggests that five years is the average useful life of R&D expenses).
- (2) The proxies for amortised R&D expenses and amortised training expenses are obtained by dividing the capitalised amount of R&D expenses and the capitalised training expenses, respectively, over 5 years (assuming a straight-line amortisation process)
- (3) Since data availability does not allow us to evaluate the present value of expected lease commitments over time, the present value of expected future lease commitments capitalised is assumed to be equal to the overall amount of operating leases expenses over for a five years period. The amount annually amortised is close to the amount of R&D expenses divided by 3 years (assuming a straight-line amortisation process).

**Figure A1.**  
The accounting adjustments made to move the book values closer to their economic values in the EVA calculation

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