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# Mergers and shareholder wealth in European banking

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## Abstract

We study the stock market valuation of mergers and acquisitions in the European banking industry. Based on a sample of very large deals observed from 1988 to 1997 we document that, on average, at the announcement time the size-adjusted combined performance of both the bidder and the target is statistically significant and economically relevant. Although our sample shows a great deal of cross-sectional variation, the general results are mainly driven by the significant positive abnormal returns associated with the announcement of domestic bank to bank deals and by product diversification of banks into insurance. On the contrary, we found that M&A with securities firms and concluded with foreign institutions did not gain a positive market's expectation.

Our results are remarkably different from those reported for US bank mergers. We explain our different results as stemming from the different structure and regulation of EU banking markets, which are shown to be more similar between them than as compared with the US one. © 2000 Elsevier Science B.V. All rights reserved.

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## 1. Introduction

This paper studies the stock market valuation effects of mergers and acquisitions in European banking between 1988 and 1997. Over the last two decades, the banking and financial services industry has experienced profound changes. One of the most important effects of this restructuring process has been an increase in consolidation activity. From 1987 to 1997, the value of mergers and acquisitions in the world financial industry has reached nearly 1.4 trillions of US\$ (e.g. The Economist, 1997). At the beginning of this period, US deals dominated the scene but, more recently, M&As in European banking have started to catch up. After averaging 15 deals a year up to 1985, European M&A deals, including minority deals, jumped to a new level of 50–90 deals per year between 1986 and 1994 (e.g. Economic Research Europe, 1996, par. 4.3.4). According to Securities Data Corporation, between January 1991 and April 1996 the value of European deals totaled 77.9 billion \$US compared with 193.6 in the US.

To date, most of the available knowledge on M&As in banking comes from scrutiny of the US market. Pilloff and Santomero (1998) review the voluminous empirical literature on the US experience. The authors point to the following paradox: despite academic studies showing no significant gains in value or performance from bank mergers, the number and value of new mergers in the US continues to grow unabated! European M&A deals, the focus of this paper, while being important, have however attracted much less scrutiny. This is due both to the lead of M&A activity in the US market and to the huge methodological difficulties of studying the fragmented European banking market (e.g. Leonard et al., 1992).

However, such an analysis of the European experience is warranted for a number of reasons. Whatever past experience is available would be extremely useful for players who are still planning to start a major M&A deal or campaign. In this respect, the US experience cannot be automatically applied to the European environment where one can observe product expansion in a somewhat less restricted environment. As compared with the US market, the universal banking structure, that characterize Europe, implies that there are less stringent limits to product market diversification from commercial banking into investment banking. *Bancassurance* is also a European phenomenon as regulations allow EU banks to own insurance subsidiaries and to perform in direct distribution of insurance products in most jurisdictions; there, major limits to banking/insurance only remain for direct bank underwriting of policies. On the other hand, US legislation is much more restrictive both on cross ownership and cross selling between banking and insurance (e.g. Borio and Filosa, 1994). Further, the limitations on interstate expansion in the US, embedded in the McFadden Act, might inhibit geographic and scale expansion of American banks as compared to their European counterparts.

We perform an event study analysis of 54 M&A deals covering 13 European banking markets of the European Union plus the important Swiss market. We look at deals where full control is changed and both the target and the bidder are listed; this procedure yields a very large average deal size. The sample also includes 18 cross-product deals where banks expand in insurance or investment banking. To our knowledge, this is the first study that examines the consolidation of large listed banks and financial institutions in the European markets.

Two recent papers by Vander Venet (1996, 1997) examine the efficiency and profitability of 492 bank mergers and acquisitions between European institutions from 1988 to 1992, using accounting data. His 1996 study, performing univariate tests, finds some profitability improvements in domestic mergers among equal-sized entities and some efficiency improvements in cross-border acquisitions. However, the study is only partially comparable to ours as the average deal value is much smaller; cross product deals are not included in the study; the sample selection procedure defines an M&A deal as any acquisitions of a stake of 50% without controlling if the transfer is between affiliated parties or between different parties. The 1997 study is a limited dependent analysis on the same sample and suffers from similar limitations.

An M&A deal can be considered as an event that moves the involved entities along the profit function through a change in size, scope and distance from the efficient frontier. Hence, available evidence on cross section estimates of profit and cost functions may help to explain the likely profitability impacts of these deals. A cost function estimation for the largest international banks was performed by Saunders and Walter (1994), who compare the performance of universal banks in Europe with specialized banks in the US and Japan. They find evidence of diseconomies of scope between commercial and investment banking and some evidence of economies of super-scale in specialized banks. Altunbas et al. (1996) perform estimates of cost functions in all major EU jurisdictions between 1988 and 1994. Despite the huge variability of the results across the various time and country pairs, they find evidence of economies of scale in the majority of their regressions, thus confirming the results of a large number of cost studies conducted at the country level.

Our study of European M&A deals finds a positive and significant increase in stock market value for the average merger at the time of the deal announcement. We are able to show that country effects do not drive these results, hinting at a relatively homogeneous stock market valuation and institutional framework across Europe. Our findings contradict the bulk of empirical studies conducted in the US banking markets where no value creation effects are generally found. By analyzing the size of value creation for different types of deals, we provide some evidence that domestic combinations between banks and banking/insurance deals tend to drive our results. We tentatively interpret the difference between our findings and those of the US literature as stemming from the different regulatory regimes in Europe and the

US. The results for banking/insurance deals point to the possible advantages of having a more liberal regime regulating product diversification for European versus American banks. Our findings for the value creation effect of domestic combinations are more puzzling to understand as a consequence of institutional factors. They are however consistent with findings of decreasing cost functions in European but not in American banking. They are also consistent with somewhat less rigorous antitrust enforcement in Europe versus the US.

The paper is organized as follows. Section 2 reviews the main hypotheses on the determinants of bank mergers. Section 3 describes how the sample is constructed. Section 4 presents the empirical analysis and results. Section 5 concludes the paper.

## 2. Determinants of bank mergers and acquisitions

Stock market data cast some evidence on the impact of M&A deals on shareholder value creation. A positive impact value can be explained by an increase in efficiency or in market power following the deal (e.g. Beatty et al., 1987; Berger and Humphrey, 1992). More information on the determinants of M&A gains at the time of the public announcement can be obtained by splitting the sample according to scope, geography, size and legal nature of the deals.

*Scope.* One may look for the existence of economies of scope by comparing the value creation effect of bank to bank as opposed to cross product deals.

*Geography.* The geographical dimension of the deal is also relevant. In a sample of horizontal (within-market) mergers, Rhoades (1993) showed that a more efficient firm acquiring a less efficient firm concluded the average deal. That is, bank mergers may be motivated to eliminate duplicated activities, and that could be more likely when there is considerable overlap between markets. In our sample, looking at domestic (overlapping) versus cross-border (non-overlapping) deals can test this.

*Scale.* Some evidence of economies of scale effects can be observed if value creation effects are larger the larger is the deal size.<sup>1</sup> A recent study by Siems (1996), on the stock market valuation of US bank mega-mergers announced in 1995, found some evidence of this hypotheses especially for in-market mergers.

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<sup>1</sup> The size of the deal is also a rough proxy of the change in market concentration following the deal, a parameter that is included in some merger guidelines. However, the most recent literature on the impact of market structure on monopoly power shows that market concentration is a very poor determinant of market power (e.g., Shaffer, 1994); hence, our data do not enable us to shed any light on the impact on whether M&A gains are related to monopoly power as compared to other factors we observe.

*Legal.* The legal structure of the deal, acquisition versus merger, may shed further light on the motivation of the deal (e.g. Gilson, 1986). A desired increase in cost efficiency will be more likely to be related to a centralized mode of organization like a merger (e.g. James and Houston, 1996). On the other hand, an acquisition deal may follow from a desire to preserve the identity of the target by limiting intervention to the injection of capital or other inputs may be signaled by its incorporation within an holding or business group structure. In addition, since most acquisitions in our sample are engineered as public offers, where incumbent management has a relatively limited veto power, change in control through an acquisition may signal a more disciplinary motivation than in a transaction organized through a merger. The distinction between the two types of deals is however blurred, as some acquired firms are later merged with the bidder and by the friendly nature of many acquisitions, especially in regulated sectors like banking.

*Comparing bidders and targets.* Further details on the motivation of M&A deals can be inferred by looking at characteristics of bidders and targets before the event. For example, if the pre-event performance of the target is poor as compared with the bidder and with the market, it is more likely that the acquisition is motivated by the desire to replace inefficient management than by the pursuit of synergy (e.g. Morck et al., 1988).

### 3. Sample design and data sources on European bank mergers

The first building block of our study is a list of transactions. We analyze mergers and acquisitions that were announced in the European markets from 1988 to 1997. Our sample construction is as follows. We require that at least one partner was a banking firm. We restrict our attention to transactions related to change in control of the target. Our sample comes from searching the Acquisition Monthly Data (AMDATA), data set and the Financial Times CD-ROM. We searched for all deals larger than 100 Mns. USD, where the target is a European bank, or the bidder is a European bank and the target is a European financial service company. Stock market data were taken from the Datastream database. This procedure yielded 72 target financial institutions that were listed in some European stock market. We then identified 54 cases, out of the target sample, in which also the acquiring bank was listed. This is our final sample, and the focus of our empirical analyses.

For each deal we included in the sample we also collected the following data:

- information about the deal was from the data source we mentioned above. We also found further information through a CD-ROM search of the Financial Times;
- stock market prices were obtained searching through the Datastream database;

- data on balance sheets assets and equity were collected from the mentioned sources and from other data providers as Bloomberg and the publications of Morgan Stanley Capital International.

Due to the presence of different regulations across Europe, we were unable to follow the US practice of not including M&A deals resulting from rescue motivations; this should bias downward our value creation estimates. In addition, we followed Pilloff and Santomero (1998) suggestions and did not purge the sample from a few instances of repeated bidder activity.

In Table 1 we present a summary statistics of the final sample. Panel A gives first a classification by type of deal and by year. It has to be noted that type-classification is largely overlapped. For example, we can have deals that are classified cross-border, and which are simultaneously cross-product transactions.<sup>2</sup> The most striking feature of the sample is the very large average value of the transactions as compared to the US case (see Column 2 in Panel A).

The average value deal included in our sample is worth 1.61 USD billions; the median deal is worth 0.62 USD billions. The mean stake acquired in the target equity has been 84.94% (median = 100%); this confirm that we only sampled unambiguous transfers in control. Some kind of institutional investors control the vast majority of the banks included in our sample. Government controlled banks are rare in our sample since they tend to be closely held. Further features of our sample are the preponderance of acquisitions and the increase of deals around 1990 and in more recent years. These two peaks refer to anticipation of the impact of the Single Market Program and of Monetary Union. Also looking at other statistics of panel A, we see that starting in the nineties, bank M&As in Europe involved bigger players than in the earlier period of our sample.

In Panel B we present the sample composition by country, to better appreciate the intensity of consolidation processes in each European country. We observe an higher number of institutions involved in deals for Italy, Sweden, Portugal, UK and Spain. However, there is not a dominating country in the transaction sample. There is a much clear pattern between countries mainly involved in domestic transactions between banks, and banking markets which have been interested by more cross-product mergers. The quantitative importance of cross border mergers is relatively limited, however. In our sample, they account for only 12% of the value of total deals with an increase from 8% in the first sub period to 14% in the second sub-period (see also Bank of England, 1993). From this perspective, South Europe has been the land to conquer and

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<sup>2</sup> Here are the most relevant one-way overlaps. More than 80% of large deals, cross-product deals and cross-border deals are organized as acquisitions. More than 80% of deals which are organized as mergers are domestic and bank to bank. More than 80% of bank to bank deals are domestic. Multivariate analysis is employed below to sort out the most important effects.

the threat of entry has also fueled consolidation between big domestic commercial banks. On the contrary, Germany, Switzerland and especially the UK market, were involved in transactions between banks and securities and insurance firms. This general trend, of course, has some limitations. Both in the South we observed banks acquiring securities firms, mainly in France, and in the North of Europe we observed large bank mergers.

Table 1  
Summary statistics of mergers and acquisitions in sample<sup>a</sup>

Year	Deals: number and mean value in millions of US\$		Type of deal					
	Number	Value	Mergers	Acquisitions				
				All	Dropped	Bank and bank	Cross-product	Cross-border
<i>Panel A</i>								
1988	4	629	1	3	0	0	3	2
1989	9	1228	4	5	0	3	2	2
1990	6	1867	3	3	0	2	1	2
1991	6	2102	4	2	1	1	1	0
1992	4	2101	0	4	1	2	2	2
1993	3	376	0	3	0	3	0	1
1994	9	963	0	9	3	7	2	2
1995	13	1515	2	11	1	4	7	3
1996	11	1430	2	9	4	6	3	1
1997	7	3620	5	2	0	2	0	1
Full sample	72	1612	21	51	11	30	23	17
Acquirer and seller simultaneously listed (54 obs; values in millions of US\$)						Mean of relative size (%)		
Year	Acquirer		Seller		Total assets		Total equity	
	Total assets mean	Total equity mean	Total assets mean	Total equity mean				
1988	74547	5543	2779	210	16.5		12.2	
1989	86679	6543	9064	1970	21.5		27.6	
1990	60737	2151	42365	2750	29.0		41.4	
1991	17603	678	16218	1083	43.4		54.8	
1992	235179	13581	33698	922	14.0		10.8	
1993	319679	23609	4799	305	1.5		1.3	
1994	112658	5738	24382	1329	17.5		21.3	
1995	180607	10146	10419	728	11.5		13.0	
1996	40963	1072	38342	1022	34.8		41.6	
1997	131770	6585	21440	2659	9.3		17.6	
Full sample	105575	6115	23666	1741	22.4		27.4	

Table 1 Continued

*Panel B. Partition of deals by country*

	Austria	Belgium	Denmark	Finland	France	Germany	Italy
Buyers	3	0	5	1	5	9	10
Sellers	4	3	4	1	3	3	14
Total	7	3	9	2	8	12	24
Financial Institutions							
	Nether-lands	Norway	Portugal	Spain	Sweden	Switzer-land	UK
Buyers	3	4	7	5	9	6	5
Sellers	2	5	6	6	9	3	9
Total	5	9	13	11	18	9	14
Financial Institutions							

<sup>a</sup> The table presents summary statistics of the sample of mergers and acquisitions taking place between 1988 and 1997 in 14 European Banking Markets that were identified from: Acquisition Monthly Dataset, Financial Times, Leonard et al. (1992), Salomon Brothers ER and The Banker. The values of Total Assets (Equity) are measured in local currency at the end of year (month) before the deal's announcement date. Values in local currency were converted in US\$ using the mean of the exchange rate in the previous year (month). Relative size is measured as the total assets (equity) of the seller divided by the total assets (equity) of the seller and acquirer combined.

Table 2 summarizes the most relevant figures to compare our sample with those of a selected number of studies that were done on US bank mergers. Bigger players than those included in US studies compose the European experience we study, on average. For instance, Houston and Ryngaert (1994) report a mean relative size (they called it *Mktratio* in their Table 3) of 16%, while our corresponding statistics is about 27%. Zhang (1995) has a sample of 107 bank takeovers where the average bidder has assets for 13.9 billions of

Table 2

Comparison of some statistics of European mergers and acquisitions in sample with selected US studies (mean values in millions of US\$)

Statistics	Our study	Selected US bank mergers studies <sup>a</sup>				
		CT (1992)	HR (1994)	Z (1995)	P (1996)	S (1996)
Bank mergers in sample	54/72	30	153	107	48	19
Deal value	1612	348	NA	NA	NA	2774
Size of partners in terms of total assets						
Bidder	106	18	NA	14	13	61
Target	24	6	NA	2	4	19
Relative size of target	22.4%	26.5%	15.9%	14.9%	26.1%	23.5%

<sup>a</sup> Legenda: CT (1992): Cornett and Tehranian (1992); HR (1994): Houston and Ryngaert (1994); Z (1995): Zhang (1995) P (1996): Pilloff (1996); S (1996): Siems (1996).



Table 3  
Weighted average daily abnormal returns<sup>a</sup>

Event window	Mean (%)	S.D. (%)	Pos/Neg		Test of significance	
					Z-test	p-value
<i>Panel A. Weight: Total assets</i>						
(-1, +1)	2.22	5.60	38	16	7.79	<0.000
(-2, +2)	2.58	6.38	36	18	6.42	<0.000
(-5, +5)	2.53	6.89	33	21	4.22	0.000
(-10, +10)	3.07	9.20	32	22	3.13	0.001
(-20, +20)	3.69	10.81	35	19	3.24	0.001
(-1, 0)	2.06	4.75	37	17	7.83	<0.000
(-2, 0)	2.27	4.93	38	16	7.13	<0.000
(-5, 0)	2.37	5.72	36	18	5.13	<0.000
(-10, 0)	2.86	6.85	37	17	4.11	<0.000
(-20, 0)	3.58	6.48	41	13	3.97	<0.000
<i>Panel B. Weight: Equity value</i>						
(-1, +1)	2.67	6.76	38	16	7.61	<0.000
(-2, +2)	2.89	6.82	39	15	6.23	<0.000
(-5, +5)	2.86	7.61	32	22	3.88	<0.000
(-10, +10)	3.41	10.22	32	22	2.70	0.003
(-20, +20)	4.27	11.44	35	19	2.71	0.003
(-1, 0)	2.65	6.22	40	14	8.16	<0.000
(-2, 0)	2.81	6.28	40	14	7.44	<0.000
(-5, 0)	2.88	6.91	36	18	5.13	<0.000
(-10, 0)	3.52	7.92	36	18	4.18	<0.000
(-20, 0)	4.49	7.43	42	12	4.07	<0.000

<sup>a</sup> The table presents results of the event study for a sample of 54 deals where buyers and sellers were simultaneously listed. Abnormal returns (ARs) are computed individually for acquirers and sellers with the OLS market model using for each deal the Datastream bank sector index. Regression parameters are estimated using the Scholes–Williams (1977) procedure from  $t = -270$  to  $t = -21$ , where  $t = 0$  is the day the deal was initially announced in the Financial Times. Value-weighted ARs are computed using the value of Total Assets (Equity) at the end-of-year (month) before the deal's announcement date. Tests of significance are calculated from standardized abnormal returns employing the Dodd–Warner (1983) procedure.

USD and the mean target total assets is about 2.4 billions of USD. Pilloff (1996) analyses a sample of 48 mergers between listed banks and reports a mean total assets for acquirer and target banks of 13 and 3.7 billions of USD, respectively. In our restricted sample of 54 deals where buyer and seller were simultaneously listed, the mean acquiring bank has total assets for 105 billions of USD. Our average target financial institution has total assets around 23 billions of USD, and therefore it is much bigger than the mean acquiring bank of most of US studies with the possible exception of the paper by Siems (1996) on bank mega-mergers announced in 1995, when the average size of deals started to reach the European mean dimension.

Our sample selection procedure, and particularly the requirement that the target is listed on a stock exchange, helps to explain the large transaction size we find. Another important reason why European deals seem to be larger than US ones is the larger average size of European banks as compared with American banks. For example, in 1993, the 10 largest European banks were 1.5 larger than their American counterparts in terms of Tier-1 capital; the difference surged to 1.8 if we looked at the 50 largest banks in the two areas (differences in size as measured by assets were even more striking).

#### 4. Empirical study

##### 4.1. Constructing abnormal returns

To measure abnormal stock market returns we apply a standard event study methodology. For each deal we construct abnormal returns separately for the acquirer and the seller. The market model is used to calculate an abnormal return (AR) for firm  $i$  on day  $t$  as follows:

$$AR_{it} = R_{it} + [\hat{\alpha}_i + \hat{\beta}_i * R_{mt}], \quad (1)$$

where  $R_{it}$  is the observed return on security  $i$  (taking account of dividends and capital changes) for event day  $t$  and  $R_{mt}$  is the observed return on the benchmark for event day  $t$ . We used two different benchmarks to estimate OLS regression parameters  $\alpha$  and  $\beta$  either the Datastream General market index or the Datastream Bank sector index, respectively, for the bidder and target's country.<sup>3</sup> Market model parameters are estimated over day  $-270$  to day  $-21$ , where day 0 is the deal's announcement day.

To take in consideration possible problems of nonsynchronous trading, each regression was run using the Scholes–Williams (1977) procedure, and OLS coefficients are adjusted accordingly. However, the large size of the average and median deal contained in our sample should signal that the stocks we analysed are generally liquid ones. Finally, to test for significance of abnormal returns we follow Dodd and Warner (1983) method of aggre-

<sup>3</sup> For deals involving an insurance company we have used the Datastream Insurance Index, instead of the Bank sector index. However, in the paper we'll be referring loosely to the Bank Index. We also run for each deal a two-factor model regression using simultaneously the General and Bank sector indexes as independent variables. The results, on average, do not change significantly and were very similar in magnitude to those reported with only the Bank sector index. To this end we'll be using more this benchmark in our analyses. However, when the two factors are highly correlated, either the interpretation or the efficiency of the estimates is biased. Furthermore even an orthogonalization procedure did not produce a significant benefit (e.g. Giliberto, 1985).

gating standardised abnormal returns. The method allows to control for different volatility of stock returns and the different number of observations used for each event.

A further step in our empirical analysis is to evaluate the market's expectations on the combined gain resulting from the merger of the two financial institutions. In fact, looking only at the two separate entities may give a partial and perhaps distorted interpretation of the market reaction to the deal's announcement. Therefore, we calculate the weighted sum of acquirer and seller abnormal returns according to the following equation:

$$\frac{AR_{bi} \times MV_{bi} + AR_{si} \times MV_{si}}{MV_{bi} + MV_{si}}, \quad (2)$$

where  $MV_{bi}$  and  $MV_{si}$  are the Market capitalisation at the end of month before the deal's announcement date, respectively for buyer (b) and seller (s). As an alternative measure to weight abnormal returns we also used Total Assets (TA) at the end of year before the day 0. When we approached test of significance, we calculated the variance of each deal value-weighted abnormal returns taking in account the estimated correlation between bidder and target market model residuals.<sup>4</sup>

#### 4.2. Market valuation at announcement time

Mean abnormal returns have been measured over several event windows to better evaluate the market reaction before and after the deal's announcement. As it will become clear examining the empirical results, the European evidence on bank M&As shows a significant price effect several days before the public announcement. In fact, when we compare symmetric cumulative abnormal returns – CAR (i.e., using same number of days before and after day 0), with CAR computed before the announcement, we see that the difference between the two measures is nil.<sup>5</sup>

Table 3 reports the results for value-weighted abnormal returns using the bank sector index as benchmark in the market model.<sup>6</sup> Panel A contains the results using the total assets at the end of the last fiscal year as a weight for abnormal returns, while Panel B uses the stock market value at the end of

<sup>4</sup> Our approach is similar to that used by Houston and Ryngaert (1994).

<sup>5</sup> This fact is not new in the merger literature. Bradley (1980) and others have found that most of the time market reacts to merger announcement at least ten days prior to the first public announcement.

<sup>6</sup> The results using the Datastream general market index do not change significantly, but lead to slightly higher abnormal returns.

month before the announcement date as a weight-measure. As can be noted observing the column containing the *p*-value of the Z-test, all measures of CARs are highly significant. We can compare the results presented in Table 3 with those reported in some US studies. Zhang (1995) shows that the weighted average CAR for 5 days (−2, +2) is about 7%, while we found a mean around 3%. The two results are significantly different at the 1% level but, as we mentioned, the average size of our pairs of deals is also significantly higher. Pilloff (1996) shows a mean value-weighted CAR of 1.44% (significant at 10%) for the eleven-day window (−10, 0); our comparable measure is 2.86%, significant at 1%; however the two statistics are non-significantly different. Houston and Ryngaert (1994) reported a mean value-weighted CAR of 0.4% for a five day window (−4, 0). Our closest event window shows a mean of 2.9%, and a *t*-test on the mean difference is significant at 5%.

To better appreciate the economic impact of the market valuation of the mean deal in our sample, we calculate the weighted wealth gains as the weighted sum of the variation in market value of the buyer and the seller. For the short period of 3 days (−2, 0) is about 226 millions of USD, which it also represents, on average, 14% of the deal value. This number can be compared with that reported by Zhang (1995) for a two-day window: in the US market he found that the dollar value created averages about 42 millions per bank takeover.

In Tables 4 and 5 we present separate results for bidder and target banks. Table 4 reports the results for the sample of acquiring banks. In Panel A we present results using the Datastream general market index of each country in the market model regressions, while in Panel B the abnormal returns have been calculated employing the Datastream Bank sector index. Although the results seem quite different using the two different benchmarks, average differences are not statistically significant. With the General Market index, acquiring banks show a significant and positive market revaluation in the shorter event windows. On the other hand, results using the bank sector index do not confirm a significant and positive effect. The contagious effects at merger announcements can explain the less pronounced market revaluation we observe when abnormal returns are constructed with the Industry Index. In other words, when a bank merger is announced bank stocks tend to rise, either because the increase of the market concentration improves profits of the largest players (e.g. Eckbo, 1983), or because financial analysts expect other peers to be more likely to be acquired. This implies that the sector index reaches a higher level, reducing excess returns.

Our empirical results for acquiring banks are significantly different from several related studies for the US bank mergers, which have documented a significant negative price effect for acquiring banks (e.g., Cornett and Tehranian, 1992; Houston and Ryngaert, 1994). Siems (1996) in the aforementioned

Table 4  
Cumulative daily abnormal returns – buyers<sup>a</sup>

Event window	Mean (%)	S.D. (%)	Pos/Neg	Test of significance	
				Z-test	p-value
Panel A. Benchmark: Datastream general market index					
(−1, +1)	0.99	6.64	30 24	2.32	0.01
(−2, +2)	1.40	7.80	28 26	2.39	0.01
(−5, +5)	1.08	7.17	25 29	1.17	0.12
(−10, +10)	1.16	9.52	24 30	0.68	0.25
(−20, +20)	2.19	9.43	34 20	2.02	0.02
(−1, 0)	0.62	5.75	32 22	1.37	0.08
(−2, 0)	0.70	5.81	28 26	1.45	0.07
(−5, 0)	0.58	6.18	24 30	0.69	0.24
(−10, 0)	0.92	7.73	30 24	0.56	0.29
(−20, 0)	1.46	8.71	34 20	1.44	0.07
Panel B. Benchmark: Datastream bank sector index					
(−1, +1)	−0.19	4.37	27 27	−0.20	0.42
(−2, +2)	0.16	4.75	26 28	0.44	0.33
(−5, +5)	−0.17	4.35	27 27	−0.19	0.43
(−10, +10)	0.11	7.74	23 31	0.35	0.36
(−20, +20)	1.03	9.16	30 24	0.75	0.23
(−1, 0)	−0.17	3.95	28 26	−1.06	0.14
(−2, 0)	−0.20	3.94	28 26	−0.42	0.34
(−5, 0)	−0.40	3.93	28 26	−0.79	0.22
(−10, 0)	0.03	5.61	26 28	0.33	0.37
(−20, 0)	0.31	6.52	32 22	0.42	0.34

<sup>a</sup> The table presents results of the event study for 54 buyers in 14 European banking markets between 1988–1997. Abnormal returns are computed with the OLS market model using for each deal the Datastream value weighted general market index (Panel A), or the bank sector index (Panel B) for each country. Regression parameters are estimated using the Scholes–Williams (1977) procedure from  $t = -270$  to  $t = -21$ , where  $t = 0$  is the day the deal was initially announced in the Financial Times. Tests of significance are calculated from standardized abnormal returns employing the Dodd–Warner (1983) procedure.

study of 19 US bank mega mergers announced in 1995, also found a significant negative market reaction to the mean acquiring bank.

In Table 5 we report CARs for the targets' sample. As expected, in all event windows analyzed we find a significant and highly positive effect. The magnitude of the market revaluation in case of European targets deserves some comment with respect to the US results. For instance, for a two-day excess return we found an average of 12%, while Cornett and Tehranian (1992) reported an average of 8%. For a five-day abnormal return our results (about 13%) are similar to those reported in the study of Houston and Ryngaert (1994). Our sample of European bank mega mergers can be also compared with that constructed by Siems (1996), who reported an average market

Table 5  
Cumulative daily abnormal returns – sellers<sup>a</sup>

Event window	Mean (%)	S.D. (%)	Pos/Neg	Test of significance	
				Z-test	p-value
Panel A. Benchmark: Datastream general market index					
(−1, +1)	12.93	22.19	55 17	36.03	<0.000
(−2, +2)	13.68	22.36	55 17	30.94	<0.000
(−5, +5)	13.52	23.64	51 21	19.58	<0.000
(−10, +10)	14.16	24.88	51 21	14.33	<0.000
(−20, +20)	15.30	29.55	50 22	11.64	<0.000
(−1, 0)	13.16	21.95	58 14	44.76	<0.000
(−2, 0)	14.31	22.14	58 14	41.67	<0.000
(−5, 0)	15.02	22.83	52 20	28.84	<0.000
(−10, 0)	15.69	23.37	53 19	21.81	<0.000
(−20, 0)	17.95	24.17	56 16	17.87	<0.000
Panel B. Benchmark: Datastream bank sector index					
(−1, +1)	12.09	22.01	54 18	33.37	<0.000
(−2, +2)	12.77	22.23	54 18	28.94	<0.000
(−5, +5)	12.55	23.30	52 20	17.87	<0.000
(−10, +10)	12.95	24.95	48 24	12.74	<0.000
(−20, +20)	14.01	29.09	46 26	10.39	<0.000
(−1, 0)	12.55	21.92	59 13	42.27	<0.000
(−2, 0)	13.68	22.16	59 13	39.81	<0.000
(−5, 0)	14.21	22.72	55 17	27.11	<0.000
(−10, 0)	14.82	23.33	54 18	20.08	<0.000
(−20, 0)	16.63	24.18	53 19	16.19	<0.000

<sup>a</sup> The table presents results of the event study for 72 sellers in 14 European banking markets between 1988–1997. Abnormal returns are computed with the OLS market model using for each deal the Datastream value weighted general market index (Panel A), or the sector bank index (Panel B) for each country. Regression parameters are estimated using the Scholes–Williams (1977) procedure from  $t = -270$  to  $t = -21$ , where  $t = 0$  is the day the deal was initially announced in the Financial Times. Tests of significance are calculated from standardized abnormal returns employing the Dodd–Warner (1983) procedure.

revaluation of target bank of about 13% for the window of 3 days (-1, +1), which it is not different from ours (12.93%).

In the case of target European financial institution we observe that symmetric CARs (i.e., using same number of days before and after the announcement day), are almost equal to CARs computed before the announcement. In other words, as for the US market, we note some information leakage for bank M&A deals.

Summing up, the evidence for European banking markets suggest that there is an increase in value for the average merger at the time of the deal's announcement. This result, while consistent with some US study, contradicts several conclusions that were drawn from the majority of empirical works conducted in the US banking market.

#### 4.3. Bivariate analysis of deal type and stock market returns

From our sample we were able to construct several sub-samples, classifying each deal in several groups. First, we compare mergers and acquisitions between commercial banks against cross-products deals, which involved banks with either an insurance or a security firm. Second, we contrast results between mergers of national partners versus deals regarding financial institutions of different countries, we label the latter as cross-border transactions. Third, we divided our sample with regards to the mean deal value, classifying large deals all those which had a deal value greater than the mean, and small deals the others. Finally, in the fourth classification, we separate our sample between majority acquisitions and pure merger transactions.

In panel A of Table 6 we present the CARs over an eleven day period, separately for buyers, sellers and the combined entity, for the sample which includes deals that were subsequently canceled.<sup>7</sup> We also present some tests of significance. Z-test and Wilcoxon statistics test, respectively, whether the mean and the median is different from zero (the latter is important here, due to the smaller size of various sub-samples and the non normal distribution of the excess returns). We also used a *t*-test to verify whether the mean of two paired subgroups is different from each other. In case the assumption of equal variance between the two distributions is rejected, we use the Cochrane–Cox method to approximate the *t*-statistic.

*Scope.* In the first partition between one-line business (commercial banking) against cross-products deals we see that both groups show a positive and statistically significant value-weighted returns in the selected event window. However, the two results although different in size are not statistically different from each other and both groups tend to exhibit positive shareholder value creation. Bidding banks show a negative market reaction in case of M&A between banks, while reach a positive CARs when announced a diversification merger. Cross-products deals show a great deal of variability. In the two bottom lines of the first partition we also present results separately for deals involving banks and insurance firms and bank mergers with securities firms. We note that the positive results we obtain for the cross-product deals are mainly driven by the strong market reaction of deals announced between banks and insurance firms. Deals that involved a securities firm show a positive

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<sup>7</sup> Replicating the experiment using either different event windows (e.g.  $-1, 0$ ) or CARs calculated with the general market index yields essentially the same results. However, the window of 11 days seems the most suitable to analyze the market reaction to the merger announcement as showed by the vast literature on mergers (e.g. Bradley, 1980). Furthermore we also checked the sensitivity of our results to the weighting method. Although all the next tables present results which use the Market Capitalization as the weight for abnormal returns of the two combined financial institutions, using Total Assets did not change significantly our main empirical findings.

Table 6  
Cumulative daily abnormal returns (–10, 0) for different type of deals in European banking mergers and acquisitions<sup>a</sup>

Type of deal	Nob	Mean (%)	Pos/Neg	Tests of significance <i>p</i> -value		Mean of relative size (%)	Mean of deal value
				Z-test	Wilcoxon	T-test	
<i>Panel A. Sample includes cancelled deals</i>							
<i>Acquirers</i>							
Commercial banking vs. cross-products							
Commercial banking	36	-0.47	17	0.28	0.83	0.36	
Cross-products	18	1.02	9	0.41	0.73		
Bank and Insurance	10	-0.16	5	0.48	0.92	0.35	
Bank and securities firm	8	2.50	4	0.34	0.55		
Domestic vs. cross-borders							
Domestic	39	-0.49	19	0.28	0.78	0.28	
Cross-borders	15	1.38	7	0.40	0.56		
Large vs. small deals							
Large	19	-1.53	9	0.22	0.52	0.13	
Small	35	0.87	17	0.32	0.69		
Acquisitions vs. mergers							
Acquisitions	37	-1.35	13	0.02	0.05	0.01	
Mergers	17	3.02	13	0.01	0.01		
Full sample	54	0.03	26	0.37	0.98		
<i>Sellers</i>							
Commercial banking vs. cross-products							
Commercial banking	49	14.72	38	<0.00	0.00	0.96	
Cross-products	23	15.02	16	<0.00	0.00		



Bank and insurance	10	19.29	0.5	5	<0.00	0.27	0.54	
Bank and securities firm	13	11.74	11	2	<0.00	0.00		
Domestic vs. cross-borders								
Domestic	55	13.74	38	17	<0.00	0.00	0.49	
Cross-borders	17	18.29	16	1	<0.00	0.00		
Large vs. small								
Large	21	11.49	15	6	<0.00	0.01	0.44	
Small	51	16.18	39	12	<0.00	0.00		
Acquisitions vs. mergers								
Acquisitions	51	17.46	41	10	<0.00	0.00	0.13	
Mergers	21	8.39	13	8	<0.00	0.03		
Full sample	72	14.82	54	18	<0.00	<0.00		
<i>Weighted</i>								
Commercial banking vs. cross products								
Commercial banking	36	2.54	25	11	0.02	0.00	0.20	1736
Cross-products	18	5.49	11	7	<0.00	0.13		1903
Bank and insurance	10	7.03	6	4	<0.00	0.32	0.54	2733
Bank and securities firm	8	3.56	5	3	0.38	0.31		866
Domestic vs. cross borders								
Domestic	39	4.00	26	13	<0.00	0.00	0.48	2138
Cross-borders	15	2.28	10	5	0.44	0.23		893
Large vs. small								
Large	19	3.75	13	6	0.13	0.13	0.88	4096
Small	35	3.40	23	12	<0.00	0.00		541

Table 6 (Continued)

Type of deal	Nob	Mean (%)	Pos/Neg	Tests of significance <i>p</i> -value		Mean of relative size (%)	Mean of deal value
				Z-test	Wilcoxon		
Acquisitions vs. mergers							
Acquisitions	37	2.52	22	15	0.17	0.12	0.17
Mergers	17	5.71	14	3	<0.00	<0.00	0.17
Full sample	54	3.52	36	18	<0.00	0.00	0.17
Panel B. Sample of completed deals							
Commercial banking vs. cross-products							
Commercial banking	30	0.26	17	13	0.41	0.37	0.48
Cross-products	16	1.54	9	7	0.29	0.38	0.48
Bank and insurance	8	0.58	5	3	0.36	0.64	0.49
Bank and securities firm	8	2.50	4	4	0.34	0.55	0.49
Domestic vs. cross-borders							
Domestic	33	0.19	19	14	0.42	0.38	0.34
Cross-borders	13	2.00	7	6	0.25	0.24	0.34
Large vs. small deals							
Large	16	-1.23	9	10	0.17	0.98	0.15
Small	30	1.73	17	13	0.10	0.11	0.15
Acquisitions vs. mergers							
Acquisitions	30	-0.76	13	17	0.11	0.40	0.01
Mergers	16	3.45	13	3	0.00	0.00	0.01
Full sample	46	0.70	26	20	0.31	0.18	0.18

Commercial banking vs. cross-products										
Commercial banking	43	15.26	32	9	<0.00	0.00	0.68			
Cross-products	18	18.11	14	4	<0.00	0.00				
Bank and insurance										
Bank and securities firm	8	25.01	4	4	<0.00	0.31	0.40			
	10	12.59	10	0	<0.00	0.00				
Domestic vs. cross-products										
Domestic	47	14.28	32	15	<0.00	0.00	0.29			
Cross-products	14	22.22	14	0	<0.00	0.00				
Large vs. small										
Large	18	12.83	12	6	<0.00	0.04	0.50			
Small	43	17.47	34	9	<0.00	0.00				
Acquisitions vs. mergers										
Acquisitions	41	19.72	34	7	<0.00	0.00	0.10			
Mergers	20	8.69	12	8	<0.00	0.04				
Full sample	61	16.10	46	15	<0.00	<0.00				
Commercial banking vs. cross-products										
Commercial banking	30	2.81	21	9	0.05	0.00	0.28	30.8	1716	
Cross-products	16	6.33	10	6	<0.00	0.09		18.6	1901	
Bank and insurance										
Bank and securities firm	8	9.09	5	3	<0.00	0.25	0.39	29.7	2936	
	8	3.56	5	3	0.38	0.31		7.6	866	
Domestic vs. cross-borders										
Domestic	33	4.47	22	11	<0.00	0.00	0.58	33.3	2150	
Cross-borders	13	2.92	9	4	0.28	0.13		9.5	841	
Large vs. small										
Large	16	4.47	11	5	0.09	0.14	0.80	38.0	4218	
Small	30	3.80	20	10	<0.00	0.00		20.5	480	

Table 6 (Continued)

Type of deal	Nob	Mean (%)	Pos/Neg	Tests of significance <i>p</i> -value		Mean of relative size (%)	Mean of deal value
				Z-test	Wilcoxon		
Acquisitions vs. mergers							
Acquisitions	30	2.93	17	0.31	0.14	21.7	1409
Mergers	16	6.10	14	<0.00	0.00	35.7	2476
Full sample	46	4.03	31	<0.00	0.00	20.3	1781

<sup>a</sup> The table presents results of the event study for 54 acquirers, 72 sellers, and a sample of 54 deals where buyers and sellers were simultaneously listed in 14 European banking markets between 1988–1997. Abnormal returns (ARs) are computed individually for acquirers and sellers with the OLS market model using for each deal the Datastream bank sector index. Regression parameters are estimated using the Scholes–Williams (1977) procedure from  $t = -270$  to  $t = -21$ , where  $t = 0$  is the day the deal was initially announced in The Financial Times. Cumulative abnormal returns (CARs) are summed over eleven days from ten days before to the deal's announcement date. Value-weighted CARs are computed using the Market Capitalization at the end-of-month before the deal's announcement date. Test of significance for the mean CARs (Z-test) are calculated from standardized abnormal returns employing the Dodd–Warner (1983) procedure. Test of significance for the median CARs are calculated using the Wilcoxon statistics. The statistical significance of mean differences between each paired subgroups are evaluated using a *t*-test, which is corrected with the Cochran method in case variances for the paired subgroups are not equals. Mean of relative size is measured as the total market value of equity of the seller divided by the total market value of equity of the seller and acquirer combined. Mean of deal value is in millions of US\$.

market reaction, although not significantly different from zero. Banks mergers with insurance firms show very high CARs, which it is also statistically different from the rest of the full sample at the 1% level. In the last two columns of the table we report the average of target relative size and the mean of deal value, to gain some further insights on the sample partition. For instance, in the case of cross-products deals we observe that mergers with insurance companies are relatively bigger than deals that involved securities firms.

*Geography.* Looking at results for our second partition we may conclude that only the combined value of domestic deals create shareholder value, whilst cross-border deals did not capture positive expectations from the market. Cross-border deals in sample are relatively smaller deals compared to in-country mergers. In addition, the average size of the foreign target institutions is very small, which probably explain the insignificant overall value creation.

*Scale.* In our third partition we compare results between small and large deals. It is interesting to note our sub-sample of small deals is relatively similar to many US bank merger studies. On the contrary, the group of large deals is quite new in the bank mergers literature, since it shows a mean deal value of about 4 billions of \$US. The stock market's expectations for future performance are more positive for small deals than for large deals. Although large deals show a positive market reaction at the announcement time, the significance of results is weak, probably driven by the negative market reaction of the acquiring institution.

*Legal.* In the last partition of our sample, we present results for the two sub-groups of majority acquisitions and against pure mergers. It has to be noted that this last partition is mainly justified by the legal difference, which distinguish the two types of deals. Our results show that pure mergers create a consistent and significant shareholder value, which it is also different at the 8% level from the average CARs of majority acquisitions. Observing the statistics on relative size and deal value for the targets, we note that pure bank mergers involve bigger players than other type of transactions of our sample.

*Dropped deals.* In panel B of Table 6 we present results for the sample which eliminates deals that were subsequently canceled because of disagreement between the parties or regulatory intervention. Our results are not strikingly affected by exclusions of these deals except for our results on focus reported in the upper panel of the table (non parametric tests are less significant) and scope (parametric tests are less significant) that are somewhat weaker than in Table 6, Panel A.

#### 4.4. Regression and multivariate analysis

In Tables 7 and 8 we report some regression analyses in order to further explore our data set.

Table 7  
Cross-sectional OLS regressions of value-weighted abnormal returns<sup>a</sup>

Explanatory variables and regression statistics	Sample includes dropped deals, $n = 54$	Sample excludes dropped deals, $n = 46$
Constant	0.019 (0.31)	0.035 (0.05)
Size of target financial institutions	0.025 (0.26)	0.056 (0.53)
Adj. $\bar{R}^2$ (%)	-1.72	-1.28
$p$ -value of $F$ -test	0.746	0.515

<sup>a</sup> The table presents coefficient estimates from cross-sectional ordinary least squares regressions of weighted cumulative abnormal returns over 11 days  $(-10, 0)$  on measures of target size. Value-weighted CARs are computed using for each deal the Datastream bank sector index and the Market Capitalization at the end-of-month before the deal's announcement date. We calculate all standard errors using the heteroskedastic-robust method of White (1980), and we report corrected  $t$ -statistics in parentheses. The variable is defined as follows: Size of target financial institutions = log of Total Equity at the end-of-month before the deal's announcement date.

Table 8  
Cross-sectional OLS regressions of value-weighted abnormal returns<sup>a</sup>

Explanatory variables	Sample includes dropped deals, $n = 54$	Sample excludes dropped deals, $n = 46$
Dummy for deals between commercial banks	-0.025 (-1.12)	-0.035 (-1.29)
Dummy for domestic deals	0.047 (2.26)*	0.057 (2.31)*
Dummy for small deals	0.019 (1.06)	0.024 (1.16)

<sup>a</sup> The table presents coefficient estimates from cross-sectional ordinary least squares regressions of weighted cumulative abnormal returns over 11 days  $(-10, 0)$  on dummies for three type of M&A deals: (i) between commercial banks; (ii) between partners of same country (domestic deals); (iii) small deals (defined as those below the sample average deal value. Value-weighted CARs are computed using for each deal the Datastream bank sector index and the Market Capitalization at the end-of-month before the deal's announcement date. We calculate all standard errors using the heteroskedastic-robust method of White (1980), and we report corrected  $t$ -statistics in parentheses.

\* Statistically significant at the 10% level in two-tailed test.

In Table 7, we regressed the CARs of 11 days we used in Table 6  $(-10, 0)$  against a size control variable, the log of target market value.<sup>8</sup> We present the regression model for two different samples of announced financial consolidations: the full sample of 54 deals and a reduced sample of 46 deals, which excludes eight deals that were successively canceled. From Table 7 we see that value-weighted market valuation is not related to the target size.

<sup>8</sup> We also used different variables as the log of Total Assets and the log of deal size, obtaining similar results to what presented in Table 7.

In Table 8 we also regressed the CARs of 11 days against a set of three dummies: the dummy related to bank to bank deals; a dummy for the domestic mergers, and the dummy use to identify small deals. The regression was run either for the full sample of announced 54 combined deals and also for the sample of 46 deals that were subsequently concluded. This analysis allows us to disentangle the effect of a particular sample partition, taking account of possible overlap effects that are present in our sub-sample classification. As can be observed from the table we found a significant coefficient, at the 10% level, only for the group of domestic bank mergers.

#### 4.5. One year time window

As a further analysis of the stock market behavior around bank M&A announcements, not reported in the tables, we computed average excess returns one year before and after the event period. To calculate these performance measures we exclude the 20 days surrounding the public announcement and we use a buy-and-hold procedure, in which a stock's buy and hold return is defined as the product of one plus each day abnormal return, minus one. Market model parameters of each year were estimated with daily returns of the same year.

*Long term impact of the deals.* In the year following the deal's announcement, we find that the higher and significant abnormal returns are observed only for mergers with insurance companies, with an average excess return of +4.73% significant at the 5% level. This strengthens our results based on a short-term event window. Our interpretation of the market performance after the announcement period is mainly related to the complexity of the deal announced. We believe that marriages between banks and other type of financial institutions must be scrutinized carefully by the market. It is possible that it takes some time to better appreciate the impact of the transaction on the profitability of both buyer and seller. A learning story is also likely in the case of dropped deals, which were penalized from the market as the outcome failed to materialize.

*Ex ante results.* In the year before the deal, both bidder and targets tend to under perform the market. In domestic deals, we find some weak evidence that bidders under perform the market less than the targets whereas the opposite occurs for cross-border deals. These results are somehow consistent with those of Rhoades (1993) for the US. For the target financial institutions we have a clear pattern of significant under-performance in the year before the deal's announcement. We also compared the ex-ante performance of target bank that have been acquired with targets that have been merged and we find a very small and non-significant under-performance of merger targets as compared with acquisitions targets and with merger bidders. All that is a weak evidence that merger deals have a more disciplinary nature than acquisition deals and does

not confirm results reported by Vander Vennet (1996). We suspect that the legal nature of the deal is a very poor proxy of its motivation.<sup>9</sup>

#### 4.6. Controlling for time and country effects

Further analysis shows that our results on the announced European bank mergers are not biased either by time or country effects.

*Time effects.* The temporal evolution of European bank mergers, as can be seen from the descriptive statistics of Table 1 above, presents two main time periods. From 1988 to 1992 the Single Market probably leaded European deals. From 1995, European bank mergers rose by value and number and were plausibly motivated by the advent of EMU (e.g. McCauley and White, 1996). We run a set of regressions, separately for bidder and target banks, of the CARs of 11 days against dummy variables for the 10 different years, and also with dummies related to two major time periods (1998–1992 and 1995–1997). We could not find any time effect related to either the buyer or target abnormal returns.

*Country effects.* From a country perspective we already underlined the fact that, although some markets in our sample were interested by an higher number of bank mergers, the overall sample is almost evenly distributed across the major European bank markets. We looked for the presence of country effects running two regressions of buyers and target banks CARs against a set of country dummies. To avoid perfect multi-collinearity we omit the dummy for the Italian deals, which effects are therefore estimated through the intercept. Table 9 presents regressions results.

In the case of acquiring banks we found a significant (negative) estimated coefficients only for Spanish banks. For target banks, German and Dutch institutions resulted with a significantly lower abnormal returns (results from Finland do refer to a single deal and should not be overemphasized).<sup>10</sup> Furthermore, we also perform in both regressions a joint *F*-test to verify whether the estimated coefficients are different from each other, and we could not reject the null hypothesis at standard significance level. We conclude that country

<sup>9</sup> Morck et al. (1988) were able to sort the ex-ante performance of a sample of acquired firms according to the motivation of the deal. They proposed to interpret deals where the transaction was an hostile takeover as disciplinary and deals where transfer of control was not disputed by management as synergetic. In Vander Vennet's study (1996) synergetic deals are proxied by mergers and disciplinary deals are proxied by acquisitions (whereas it is well known that many acquisitions have a synergetic motivation). Our results show that his proposed proxy is very weak.

<sup>10</sup> We also used Sweden as a base country, reaching same conclusions. Furthermore, the positive coefficient of Italian target banks disappeared, thus confirming that no sample country of our study had a positive and significantly different market valuation from the rest of full sample.



Table 9  
Cross-sectional ols regressions of cars for acquiring and target banks on country dummies<sup>a</sup>

Explanatory variables	Sample of acquiring banks <i>n</i> = 54	Sample of target banks <i>n</i> = 72
Constant dummy = Italy	0.042 (0.09)	0.184 (2.50)**
Dummy = Germany	0.006 (0.01)	−0.152 (−1.75)*
Dummy = Belgium	NA	−0.113 (−1.21)
Dummy = Denmark	0.086 (0.19)	0.041 (0.22)
Dummy = Spain	−0.099 (−2.22)**	0.036 (0.25)
Dummy = France	0.025 (0.56)	0.214 (0.87)
Dummy = Netherlands	−0.092 (−0.20)	−0.220 (−2.80)**
Dummy = Norway	−0.021 (−0.45)	0.095 (0.81)
Dummy = Austria	0.010 (0.23)	−0.111 (−1.13)
Dummy = Portugal	−0.017 (−0.35)	−0.077 (−0.93)
Dummy = Sweden	0.003 (0.07)	−0.064 (−0.50)
Dummy = Switzerland	−0.056 (−0.12)	−0.087 (−0.80)
Dummy = UK	−0.034 (−0.69)	−0.088 (−1.08)
Dummy = Finland	0.087 (1.93)*	−0.313 (−4.25)**

<sup>a</sup> The table presents coefficient estimates from cross-sectional ordinary least squares regressions of cumulative abnormal returns over 11 days (−10, 0) for acquiring and target banks on country dummies. CARs are computed using for each financial institution the Datastream bank sector index. We calculate all standard errors using the heteroskedastic-robust method of White (1980), and we report corrected *t*-statistics in parentheses.

\* Statistically significant at the 10% level in two-tailed test.

\*\* Statistically significant at the 5% level in two-tailed test.

effects are modest in our sample, and they do not seem to play a significant role on the results of our study.

#### 4.7. Discussion of results

On balance, our results seem to indicate that positive gains in shareholder value are associated to the average domestic bank to bank M&A and to banking/insurance deals. On the other hand, the economic impact of cross-border deals and of bank product expansion in investment banking, albeit much publicized, is non-existent. Our data set provides limited information on whether stock market appreciation for merger deals is linked to the exploitation of efficiency, to the increase of market power or to regulatory regimes that differs from the US one. Some tentative explanations are however possible.

*Benefits of focused deals.* As far as bank to bank deals are concerned, the existence of excess returns in domestic but not in cross-border deals is consistent with the market overlap hypothesis of Berger and Humphrey (1992) and Rhoades (1993), according to which deals where the activities of the involved parties have a larger geographical overlap are more likely to bring to improvements in productive efficiency. Two others, non-mutually exclusive, explanations are consistent with our evidence. First, it is possible that M&A deals

bring to a more efficient scale; this would be consistent with the more common finding of economies of scale at the size range of our deals, *both large and small*, in Europe than in the US (see Altunbas et al., 1996). Within the size threshold encompassing our sample deals, Altunbas et al. (1996) performed 48 country-year regressions for the individual EU banking markets. Their results are time dependent and should be interpreted with caution. However, they found that economies of scales are statistically significant in 46% of the cases, as compared with 27% each for the remaining cases of constant returns to scale and diseconomies of scale.

Further, there is some evidence that antitrust enforcement in US banking is more stringent than in Europe, for example because the geographic definition of the relevant market is at the finer level of the standard metropolitan area (e.g. Savage, 1993). The McFadden Act limited the geographic expansion of American banks, albeit in a less and less stringent way culminating to the 1994 deregulation, may inhibit a number of efficiency bringing mergers in the US (see Chapter 17 of Saunders, 1994).<sup>11</sup>

*Benefits of banking/insurance.* The analyses and the results obtained for cross-product deals are new in literature. The only available findings come from studies which used hypothetical mergers and simulations, which found risk reduction effects from these deals (e.g. Boyd et al., 1993). Risk reduction moves should not, per se, affect shareholder value (compare Amihud et al. (1986) with Santomero (1995)); rather, economies of scope or revenue efficiencies due to cross selling of banks and insurance products to retail customers are more likely to explain our results (e.g. Akhavein et al., 1997). Clash in corporate cultures between universal banks and investment banks is a likely explanation for the relative failure of bank expansion in investment banking (see Eccles and Crane, 1988, Table 10.1).

## 5. Conclusions

This paper provides the first analysis of the stock market valuation of the largest mergers and acquisitions between banks and financial institutions that have been announced from 1988 to 1997 in 14 European markets. Our results document that there is a positive and significant increase in value for the average merger at the time of the deal's announcement. This finding is not

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<sup>11</sup> Given a similar total GNP, the US and the EU show different sizes of domestic markets, as defined by the individual state in the Unions. Whereas there are only 15 states in Europe, there are 52 states in the US. Hence, American bank growth is somewhat limited by the size of the state of incorporation. An indirect evidence of these limits is the much larger size of European banks as compared with American banks.

consistent with the bulk of empirical studies conducted in the US banking market.

When we analyzed the combined abnormal returns of bidder and target for different types of deals, we uncover that there is a positive and significant market reaction around the short period of eleven days for the following type of transactions: commercial banks; focused transactions; combinations with insurance companies; domestic transactions; relatively small deals in our sample, which is anyway biased toward large size.

On the contrary, we found that M&A with securities firms and concluded with foreign institutions did not gain a positive market's expectation. The evidence we presented for very large deals is statistically weak, and it is probably linked to the negative market reaction to the acquiring bank.

Our research on European bank mergers reaches different conclusions from those of many related studies conducted in the US banking industry. We explain our different results as stemming from the different structure and regulation of EU banking markets, which are shown to be more similar between them than as compared with the US one.

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