

Chapter 1

Bank M&As: Motives and Evidence

1.1 Overview

Over the last two decades, a number of significant changes occurred in the banking industry, such as deregulation, globalisation, financial innovations, improvements in communication and computing technology, increased competition from within the sector and from non-bank financial intermediaries, to name a few. In response to these changes, banks have attempted to adopt strategies to improve efficiency, increase output and expand the range of services offered (Goddard *et al.*, 2001). The trend towards M&As can be interpreted as the outcome of moves to achieve these goals (Berger *et al.*, 1999; Beitel and Schiereck, 2001).

M&As of financial institutions as a trend began in the United States in the 1980s and quickly increased worldwide in the 1990s, becoming a global phenomenon. Data provided by Amel *et al.* (2004) indicate that most of the M&A activity in the financial sector between 1990 and 2001 involved banking firms, accounting for nearly 53% of all mergers in the financial sector (with 8,144 bank acquisitions among a total of 15,502 financial mergers), representing a value of \$1,835 billion, approximately 68% of the total value of financial M&As¹ (\$2,693.9 billion). Thus, it is not surprising, as Sobek (2000) claims that during the second half of the

¹ The data were obtained from Thomson Financial and SDC Platinum and refer to majority interests.

1990s the most frequent words used in reports on banking were “merger” and “acquisition”.

The last decade has also shown an increase in the number and value of large M&A deals, including “megamergers” (i.e. M&As between institutions with assets over 1\$ billion). As Rhoades (2000) points out, in the US far more banks with assets greater than 1\$ billion were acquired in the 1990s than over the 1980s. The report of the Group of Ten (2001) also indicates that over the 1990s this trend was more evident towards the end of the decade. Of the 246 mega-deals that took place over the period 1990-1999, 197 (over 80%) occurred during the second half of this period (1995-1999). In Europe, a number of mega-deals occurred between 1999 and 2002 that resulted in the creation of five of the largest European banking groups (BNP Paribas in France, IntesaBsci in Italy, Banco Santander Central Hispano and Banco Bilbao Vizcaya Argentaria in Spain, and Natwest-Royal Bank of Scotland in the UK). Some M&As also reached the scale of “supermegamergers” (i.e. M&As between institutions with assets over \$100 billion each). Based on market values, nine of the ten largest M&As in the US history took place in 1998 and four of these (Citicorp-Travelers, BankAmerica-NationsBank, Bank One – First Chicago and Norwest-Wells Fargo) occurred in banking (Moore and Siems, 1998).

Given the scale of such activity, numerous empirical studies have been conducted to address different aspects of bank M&As. In this chapter, we begin by outlining recent M&As trends in the EU banking industry and then review the theoretical and the empirical literature, as well as practitioners’ views as outlined in the reports of the European Central Bank (2000) and the Group of Ten (2001). As explained earlier, this chapter has the broader aim of informing the reader to other aspects of work that relates to the EU banking sector, but we also seek to understand the nature of the underlying factors, whether internal or external to the industry, leading to M&As in banking.

1.2 M&As Trends in the European Union

Mergers and acquisitions within the European financial sector have significantly transformed the European banking market in the last decade. For example, the number of European banking institutions fell from 12,378 in 1990 to 8,395 in 1999 (European Central Bank - ECB, 2000) while 18 of the 30 largest European banks emerged as a result of recent M&As (Belaisch *et al.*, 2001). Over the period 1995 to the first half of 2000, ECB (2000) records 2,153 M&As of credit institutions in the EU. Data from Table 1.1 provide a clear picture of the types of these M&As.

Table 1.1 Number of Total bank M&As (domestic and international) in the EU

	1995	1996	1997	1998	1999	First half 2000	Total
Total bank M&As	326	343	319	434	497	234	2153
- of which domestic	275	293	270	383	414	172	1807
- of which within EEA	20	7	12	18	27	23	107
- of which with third country	31	43	37	33	56	39	239

Source: ECB (2000)

Out of the total of 2,153 M&As, 84% were between banks from the same country, 5% occurred within European Economic Area (EEA) and 11% with banks from a third country. Over the above period domestic M&As were far more common than cross-border ones. Nevertheless, cross-border M&As of acquiring European banks, and in particular of large ones, have increased significantly since 2000. Beitel and Schiereck (2001) report that the share of cross-border M&A transactions in 2000 reached 50% and approximately 70% in terms of number and volume respectively. Another interesting observation is that M&As with institutions located in third countries have outnumbered M&As within the EEA during all years, and more than doubled on an aggregate basis for the entire period. Most European banks have chosen to expand into Latin America (e.g. banks from Netherlands, Spain, Portugal and Italy), South-East Asia (e.g. banks from Netherlands) and Central and Eastern Europe (e.g. banks from Netherlands and Ireland) probably in search for

markets offering higher margins or due to historical connections (ECB, 2000). Nevertheless, in some cases they have also expanded into developed markets such as the US (e.g. banks from Germany). Table 1.2 presents the geographical distribution of these M&As. It is interesting to note that around 80% of total M&As have involved credit institutions from Germany, Italy, France and Austria.

Table 1.2 Total number of M&As of credit institutions (domestic and cross-border) in the EU

	1995	1996	1997	1998	1999	1st half 2000	Average 1995-99
Austria	14	24	29	37	24	8	26
Belgium	6	9	9	7	11	3	8
Germany	122	134	118	202	269	101	169
Denmark	2	2	2	1	2	2	2
Spain	13	11	19	15	17	29	15
Finland	9	6	5	7	2	5	6
France	61	61	47	53	55	25	55
Greece	0	1	3	9	8	1	4
Ireland	3	4	3	3	2	0	3
Italy	73	59	45	55	66	30	60
Luxembourg	3	2	3	12	10	8	6
Netherlands	7	11	8	3	3	5	6
Portugal	6	6	2	5	2	9	4
Sweden	1	2	5	1	7	2	3
UK	6	11	21	24	19	6	16
Total	326	343	319	434	497	234	

Source: ECB (2000)

Focusing on domestic bank M&As, 1999 was a peak year with 414 deals, a 50.55% increase from the 275 deals that occurred in 1995. With respect to the size of M&As (distinguishing between small and large M&As - the latter implying that at least one of the involved institutions had assets above 1 billion euros) Figure 1.1 shows that domestic M&As have occurred mainly between smaller institutions. An obvious explanation is that the smaller institutions operating in the EU are by far much greater in number than the larger institutions. Nevertheless, since 1996, there has also been some increase in larger M&As. The number of

large domestic M&As as a percentage of total domestic M&As reached 22.09% in the first half of 2000 compared to 9.56% in 1995.

Turning to the value of M&As (Tables 1.3, 1.4 and 1.5), two general conclusions can be drawn. First, more domestic M&As tended to be involved during the period 1995-1998, and this trend continued in France and Spain beyond 1998. Second, large differences occurred among EU countries, both at the level of banking assets involved in M&As and in the trends either upwards or downwards.

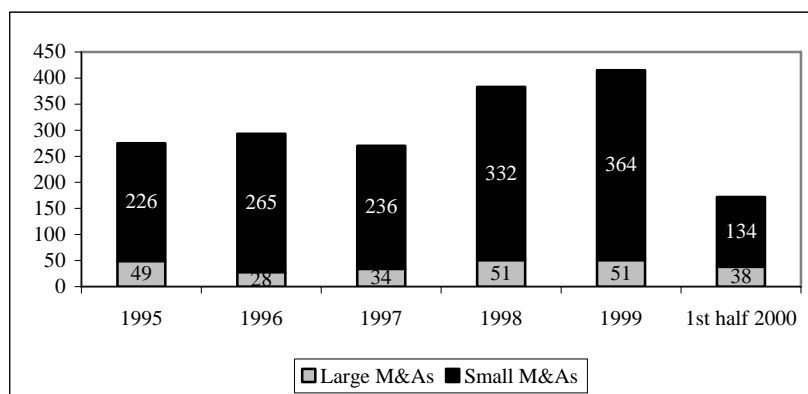


Figure 1.1 Breakdown of domestic M&As in the EU by size (Source: ECB, 2000)

For example, increases in the values have been observed in Austria, Belgium, Germany, France, Italy and Luxembourg with assets ranging from less than 5% of banking assets involved in Germany to more than 50% in France in 1999, while decreases in relation to values (and numbers) have occurred in Portugal and Sweden. Furthermore, according to data from the Securities Data Company (SDC Merger and Acquisition Database, produced by Thomson Financial Securities Services), the total value of European financial M&As increased from \$22,769.6 million in 1990 to \$147,025.6 in 1999. Over the same period, the average target value in Europe (\$467.7 millions) was higher than in the US (\$334 millions) and the main industrial countries (G10 countries plus Australia and Spain) on an aggregate basis (\$383.2 millions).

Table 1.3 Value of domestic mergers of credit institutions¹

	1995	1996	1997	1998	1999	1 st half 2000
Austria	5.42	3.01	13.37	13.68	1.16	0.31
Belgium	8.49	14.71	12.48	20.09	0.12	0.00
Germany	0.34	0.78	0.39	4.57	2.40	4.00
Denmark	0.40	7.70	0.10	15.50	0.00	0.10
Spain	0.50	7.70	0.00	1.40	20.12	18.44
Finland	45.59	3.36	0.21	29.43	0.00	3.18
France	2.90	12.10	19.00	10.80	57.50	10.28
Greece	0.00	0.00	9.94	32.78	9.01	0.00
Ireland	n.a.	n.a.	n.a.	1.40	0.00	0.00
Italy	1.30	0.17	0.10	1.07	0.04	0.00
Luxembourg	1.54	0.00	2.59	12.22	7.40	4.45
Netherlands	0.00	0.00	n.a.	0.00	0.00	0.17
Portugal	0.00	0.00	0.00	0.10	0.00	5.40
Sweden	0.00	0.07	18.00	0.00	0.00	0.00
UK	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

¹Value: Banking assets involved in mergers as a % of total domestic banking assets, Source: ECB (2000)

Table 1.4 Value of domestic majority acquisitions of credit institutions¹

	1995	1996	1997	1998	1999	1 st half 2000
Austria	n.a.	0	0	0.16	0.15	0
Belgium	0	0	0	0	0.11	0
Germany	0.07	0.01	0.07	0	0	0
Denmark	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Spain	4.64	0.28	0	0.11	0	0
Finland	0	0	0	0	0	0
France	19.4	38	16.7	12	43.89	0.17
Greece	0	0	0	3.67	4.36	0
Ireland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Italy	4.57	1.08	3.42	9.54	14.35	2.27
Luxembourg	0	0	0	0	0	0
Netherlands	0	n.a.	n.a.	0	0	0
Portugal	11.5	5.9	0.3	0	0	0.01
Sweden	0	0	0	0	0	0
UK	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

¹Value: Banking assets involved in mergers as a % of total domestic banking assets, Source: ECB (2000)

Table 1.5 Value of domestic full acquisitions of credit institutions ¹

	1995	1996	1997	1998	1999	1st half 2000
Austria	0	0	34.84	2.38	0	0.06
Belgium	0.39	1.03	2.81	0.18	0.23	0
Germany	0.77	0.46	0.09	0.01	0.02	1.5
Denmark	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Spain	0	0.01	0	0.11	0.24	0
Finland	0.77	0	0.03	0	0	0
France	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Greece	0	0	0.21	0.12	0.9	0
Ireland	0.13	0.2	n.a.	0.1	0.1	0
Italy	0.34	0.3	0.71	1.33	0.35	0.06
Luxembourg	0	0.21	0	1.82	0.05	0
Netherlands	n.a.	n.a.	n.a.	0	0.01	0.02
Portugal	13.3	1.9	0	0	0	5.29
Sweden	0.2	11.2	23	0.3	0.5	0
UK	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

¹Value: Banking assets involved in acquisitions as a % of total domestic banking assets, Source: ECB (2000)

Table 1.6 Values of M&As in European countries 1990-1999¹

Deal Type	Value (\$ millions)	1990-1999
Within- Border	Total Value	414,421.9
	Average Value	520.6
Cross-Border	Total Value	89,893.4
	Average Value	343.1
Within- Industry	Total Value	408,651.1
	Average Value	562.1
Cross-Industry	Total Value	95,664.2
	Average Value	289.0
Banking	Total Value	326,079.9
	Average Value	630.7
Insurance	Total Value	126,565.8
	Average Value	629.7
Securities/other	Total Value	51,669.8
	Average Value	152.0

¹Deals classified by country and sector of target firm
Source: Group of Ten (2001)

Table 1.6 shows that in Europe, over the 1990s the average target value in within-industry deals (\$562.1 millions) was almost double than in cross-industry ones (\$289.0 millions). Furthermore, during the same period both total and average value of domestic mergers was by far higher than those of cross-border deals. Finally, with respect to the market segments, the average value of targets in banking (\$630.7 millions) and insurance industry (\$ 629.7 millions) was much higher than the average target value of security and other financial firms (\$152.0 millions).

1.3 Reasons and Motives for Banks M&As

Often there is not one single reason but a number of reasons that lead management to the decision to merge with or acquire another firm. This section considers two issues. The first points to the main firm level motives and external factors for banks M&As. The second focuses on practitioner's views on reasons for banks M&As, as discussed in the reports of the European Central Bank (2000) and the Group of Ten (2001).

1.3.1 Firm level motives and external factors of M&As

In the neoclassical perspective, all firm decisions including acquisitions are made with the objective of maximizing the wealth of the shareholders of the firm. Nevertheless, agency conflicts between shareholders and managers could also lead to M&As that are motivated by managers' self interest. Such firm level motives could also be influenced by external factors (i.e regulations & laws, globalisation, technological progress, economic conditions, *etc.*), as shown in Figure 1.2. In line with Berkovitch and Narayanan (1993) and Ali-Yrkko (2002) among others, the analysis that follows here classifies the firm level motives into: synergy (or economic) motives, agency (or managerial) motives and hubris motives. With respect of the value maximization and non-value maximization distinction, the first set of motives that refers to synergy,

are considered as value maximization, while the other two (i.e agency and hubris) are non-value maximization motives.

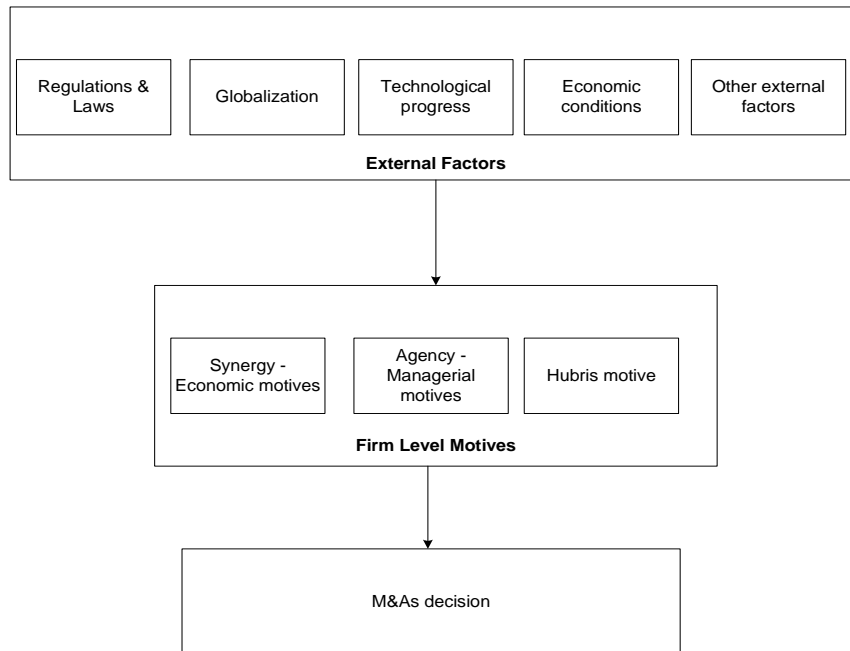


Figure 1.2 Motives and factors for M&As

1.3.1.1 Firm level motives

Synergy

Synergy, which is the name given to the concept that the combined entity will have a value greater than the sum of its parts, is one of the most often cited motives for M&As. The expected existence of synergistic benefits allows firms to incur the expenses of the acquisition process and still be able to afford to give target shareholders a premium for their shares. Synergy may allow the combined firm to appear to have a positive net present value:

$$NAV = V_{AB} - [V_A + V_B] - P - E = [V_{AB} - (V_A + V_B)] - (P + E)$$

Where,

V_{AB} = the combined value of the two firms

V_A = Firm's measure of its own value

V_B = the market value of the shares of firm B

P = premium paid for B

E = expenses of the acquisition process

The synergistic effect, which is the term in square brackets, must be greater than the sum of Expenses (E) and premium (P) to justify going forward with the acquisition or merger. Otherwise (i.e. the case where the bracketed term is not greater than the sum of P+E), the bidding firm will have overpaid for the target. Often synergy is expressed in the form 1+1 =3. The above equation for present value simply express the intuitive approach in slightly more scientific terms.

According to Lawrence (2001) synergy can arise from three primary sources: (i) operating economies, (ii) financial economies, and (iii) increased market power. Furthermore, some researchers view synergy more broadly and include the elimination of inefficient management by installing a more capable management in the acquired firm. As Gammelgaard (1999) points out, in the classical synergy approach, the acquiring firm improves the performance of the acquired firm by transferring resources and knowledge to the new subsidiary. Most common is the transfer of managerial resources. The main approach here is the differential efficiency theory where the purpose is to improve the management in the acquired firm by bringing it up to the same level as in the acquiring firm (Weston *et al.*, 1990).

Economies of Scale

This theory assumes that economies of scale do exist in the industry and that prior to the merger, the firms are operating at levels of activity lower than those required to achieve the potential for economies of scale. The merger of two firms is thus an opportunity to produce lower average costs by spreading fixed costs across a larger volume of output. Achieving economies of scale has been suggested to be the natural goal

of horizontal mergers. Many different types of economies of scale exist, such as those associated with marketing, production, distribution, finance and management sharing. The banking industry is one of the most well known examples. In the 1970s, there were many small banks in the United States. Many of them have grown by systematically buying up smaller banks and streamlining their operations. Most of the cost savings have come from closing redundant branches, consolidating systems and back offices, processing checks and credit-card transactions and payments (Brealey *et al.*, 2001).

According to Dettmer (1963), the merger or acquisition leads naturally to the access of extra and sometimes unused production facilities, and the purpose of the investment is to reduce the overhead cost per unit. For example, many businesses possess assets such as buildings, machinery or people skills, which are not used to their full limits. In the case of banks, potential for scale economies arise because neither the buildings nor the services of employees in a branch are utilised as intensively as they could be. Thus, once a merger is completed, a number of branches are closed, leaving one or two in a particular location, with consequent savings made on property and labour costs.

Early research, especially in the United States, indicated that scale economies appeared mainly in small banks rather than in large ones (Short, 1979; Miller and Noulas, 1996). According to Clark (1988) and Hunter and Timme (1989), economies of scale appear to exist in banking institutions at assets levels below \$5 billion, while Hunter and Wall (1989) state that costs of production in financial institutions appear to be relatively constant for asset sizes up to \$25 billion. Most recent studies, both in the US (Berger and Mester, 1997) and in Europe (Molyneux *et al.*, 1996, Vander Venet, 2002) find unexploited scale economies even for fairly large bank sizes due to economic development and market liberalization. Vander Venet (1998), however, found evidence of economies of scale only for the smallest banks with assets under ECU 10 billion in the EU, with constant returns thereafter and diseconomies of scale for the largest banks exceeding ECU 100 billions. A recent study by Pasiouras and Kosmidou (2005) has found a negative relation between size and bank's performance for both domestic and foreign

banks operating in the EU over the period 1995 to 2001. The authors interpret this negative coefficient in their regressions as an indication of either economies of scale (and scope) for smaller banks or diseconomies for larger financial institutions. In general, research on the existence of scale economies in retail commercial banking finds a relatively flat U-shaped average cost curve, with a minimum somewhere below \$10 billion of assets, depending on the sample, country and time period analysed (Amel *et al.*, 2004). Hughes *et al.* (2001) argue that most research finds no economies of scale because it ignores differences in banks' capital structure and risk taking and demonstrate that scale economies exist but are elusive. They show that estimated scale economies depend critically on the way banks' capital structure and risk-taking are modelled. More specifically when they include equity capital, in addition to debt, in the production model and cost is computed from the value-maximizing expansion path rather than the cost-minimizing path, banks are found to have large-scale economies that increase with size.

Economies of Scope

As pointed out by Amel *et al.* (2004), exploitation of economies of scope is probably the second most quoted reason for M&As in the financial sector. Economies of scope can be cost based or revenue based. Costs based are those achieved by offering a broad range of products or services to a customer base and can originate from fixed costs incurred in gathering an information database or computer equipment. Revenue based is related to the ability of the firm to utilise one set of inputs to offer a broader range of products and services through cross selling to an existing customer base.

A common example in financial institutions M&As is the case of sharing inputs and offering a wider range of services through units such as the department of economic research. Smaller banks might not be able to afford the cost of creating these departments, while inputs such as computers systems can be shared to process a wide variety of loans and deposit accounts. Another example often quoted is the case of banking and insurance products offered from the combined entity after the merger of a bank and an insurance firm.

Increased Market Power

Another reason for M&As is the increase of market power. Gaughan (1996) argues that there are three sources of market power: product differentiation, barriers to entry and market share. Banking markets in the EU can be characterized as a system of national oligopolies (Vander Venet, 1996). Therefore there is a potential for increased market power, defined as the ability of the firm to set and maintain price above competitive levels, and associated market gains are likely to occur as a result of the combined power of two firms within the same industry. Nevertheless, Gaughan (1996) argues that an increase in market share without product differentiation or barriers to entry could prevent a firm from raising the price above marginal cost, as this may only attract new competitors who will drive price down towards marginal cost.

Many studies have attempted to test the view that the consolidation trend in the banking industry has been motivated by a desire to gain market power and extract monopolistic profits. Vander Venet (1994a,b) has shown for a large sample of EC credit institutions that when barriers to entry exist, the incumbent banks may be able to exploit the possibility of quasi-monopoly profits. Moore (1996) argues that bank's market share could influence the probability of being acquired through several channels. First of all, in a banking market where only banks with substantial market share can compete effectively, a bank with small share is likely to be acquired, by an in-market bank, since the assets of the small bank would become more valuable after the merger with the large bank. A problem that arises in this context, particularly applicable to horizontal mergers, is the legislative obstacle caused by the regulators concerned about the potential anticompetitive practices of the combined firms. This has the effect of reducing the probability of an in-market merger between two or more banks with a significant market share. Another reason for M&A is associated with the inefficient management hypothesis, which argues that the bank's small share could reflect a lack of success in the market, giving the potential acquirer the incentive to take over the firm in order to improve its market share and efficiency. Gilbert (1984), in a review of 45 studies employing the Structure-Conduct-Performance paradigm (SCP), according to which banks in

highly concentrated markets tend to collude and therefore earn monopoly profits, found that only 27 provided evidence in support of this hypothesis, while Berger (1995) points out that the relationship between bank concentration and performance in the US depends critically on what other factors are held constant.

The Market for Bank Control - Inefficient Management Replacement

Academics have discussed the inefficient management hypothesis for many years. The inefficient management hypothesis, due to Manne (1965), argues that if the managers of a firm fail to maximize its market value, then the firm is likely to be an acquisition target and inefficient managers will be replaced. Thus, takeover targets are motivated by a belief that the acquiring firm's management can manage better the target's resources. This view is supported by two specific arguments. First, the firm might be poorly run by its current management, partly because their own objectives are at variance from those of the shareholders. In this case, the takeover threat can serve as a control mechanism limiting the degree of variance between management's pursuits for growth from shareholders desire for wealth maximization. A merger may not be the only way to improve management, but if disappointed shareholders cannot accomplish a change in management that will increase the value of their investment within the firm, either because it is too costly or too slow, then a merger may be the more simpler and practical way of achieving their desired goals. Second, the acquirer may simply have better management experience than the target. There are always firms with unexploited opportunities to cut costs and increase sales and earnings, and that makes them natural candidates for acquisition by other firms with better management (Arnold, 1998). Therefore, if the management of the acquirer is more efficient than the management of the target bank, a gain could result with a merger if the management of the target is replaced.

Grossman and Hart (1980) have challenged the view that companies not run in shareholder's interests will be taken over. The reason is that in every bid there are two groups of shareholders involved, those of the acquired and of the acquirer, with often conflicting, economic objectives. The acquirer will make an effort to offer a price that will allow realising

a profit on the deal to compensate itself for the cost of making the bid, and the shareholders of the target have to be willing to sell their shares to the bidding company at that price. However, each individual shareholder, facing the option to keep or sell the shares and under the belief that the new management will succeed to improve the firm's performance, will probably hold on the shares in expectation of a rise in the price in the future. Thus, shareholders will be willing to sell their shares only if they will be offered a price that will reflect these future gains, which should therefore be higher than the one that could compensate the acquirer for the real resource cost involved in undertaking the bid. Consequently, the incentive small shareholders have to freeride, prevents the bid from occurring in the first place, and hence the market for corporate control cannot operate effectively.

The results from the existing empirical work are somewhat mixed. While some authors (e.g. Singh, 1971, 1975; Meeks, 1977; Levine and Aaronovitch, 1981; Cosh *et al.*, 1984) indeed suggest that acquired companies are more likely to be less profitable, others (e.g. Dodd and Ruback, 1977; Hannan & Rhoades, 1987) are not supportive of the inefficient management hypothesis.

Risk Diversification

Another primary reason often advanced for M&As is risk diversification. The main argument is that the integration of two firms can lower bank risk and reduce the probability of bank failure, if the firms' cash flow streams are not perfectly correlated. The two most common forms of diversification are geographic and product diversification. The former offers a reduction of risk, because the return on loans and other financial instruments issued in different locations may have relatively low or negative correlation. In a similar manner, the latter may reduce risk because the returns across different financial services industries may have relatively low or negative correlation. For example, Berger *et al.* (2000) found that correlations of bank earnings across international borders are often very low or negative, thereby supporting the possibility of diversification benefits from cross-border consolidation of banking organizations. In addition, Neely and Wheelock (1997) found that US

banks' earnings are strongly influenced by economic growth of the states where they are located.

The assumption behind diversification as a motive for M&As is that firm-based diversification is more efficient than diversification purchased on the market, such as credit derivatives and loan sales (Froot and Stein, 1998). However, Winton (1999) argues that diversification may not always reduce the risk of bank failure, pointing to the benefits and costs of monitoring loans and the possibility that diversification may lead banks into new sectors in which they might have less expertise. Craig and Santos (1997) confirm the reduction of risk (as measured by the z-score statistic of default probability and by stock return volatility) and relate it to benefits from diversification. Benston *et al.* (1995) argue on the basis of pre-merger earnings volatility and target-acquirer correlation that the motivation for mergers in the first half of the 1980s must have been risk reduction through diversification, rather than the exploitation of the put option on deposit insurance funds. Akhavein *et al.* (1997) and Demsetz and Strahan (1997) find that bank mergers serve to diversify banks, allowing them to take on more investment risk for a given level of firm risk. Finally, Laderman (2000) examined the potential diversification and failure reduction benefits of bank expansion into non-banking activities, based on a sample of Bank Holding Companies (BHCs) and especially of large BHCs during the periods 1979-1986 and 1987-97. Her results showed significant (negative) effects of investment levels on the standard deviation of BHC return on assets (ROA), implying that appreciable levels of investment in life insurance underwriting, casualty insurance underwriting, and securities brokerage were optimal for reducing the probability of bankruptcy of the BHC.

Capital Strength

The importance of decisions relative to the amount of capital becomes obvious by the fact that financial regulators require commercial banks to sustain a minimum capital adequacy ratio. Although provisions and cumulative loan loss reserves provide early lines of defence against bad loans, bank's capital is the ultimate line of defence against the risk of bank's technical insolvency. This becomes apparent when considering that if the bank will face a serious asset quality problem then loan loss

reserves will not be sufficient to allow all bad loans to be written off against the bank and consequently the excess will have to be written off against shareholders' equity.

Thus, since low capital to asset ratios may indicate financial weakness, an acquirer may strengthen the acquired bank's financial position. Wheelock and Wilson (2000) found that the less well capitalized a bank is, the greater the probability that it will be acquired, suggesting support for the acquisition of some banks just before they become insolvent. In addition, well-capitalized banks face lower risk of going bankrupt which increases their creditworthiness and consequently reduces the cost of funding. Therefore, in contrast to the above, banks with insufficient amounts of capital may acquire banks with relatively high capital to assets ratios. That could allow them to gain better access to financial markets and enjoy lower costs of raising capital, as the combined entity will be considered to be less risky and would probably be able to issue bonds offering a lower interest rate than before.

Agency Motives (Managerial Motives)

The agency theory extends the previous work by Manne (1965), who analysed the market for corporate control and viewed takeovers as a threat if a firm's management lacked performance either because of inefficiency or because of agency problems. Jensen and Meckling (1976) formulated the implications of agency problems, which typically arise when management owns only a small proportion of share capital. It is well known that the modern economy, is characterised by large corporations with widespread distribution of ownership that is separated from management, in which case there is a potential for managers to pursue their own objectives such as enhance their salary and prestige, diversify personal risk or secure their job through empire-building, rather than maximize profits, at the expense of shareholders. For example, although shareholders of acquired banks experience large increases in the value of their shares, top executives of acquired banks may often lose their autonomy and accept diminished job responsibilities or may even be forced to terminate their employment. Thus, during the bank merger negotiations, managers may be forced to choose between shareholders'

best interest by accepting a value maximizing the takeover offer or their own best interest by maintaining their bank's independence (Hadlock *et al.*, 1999).

The wage explanation implicit in the above argument is considered to be one of the most important managerial motives for M&As. Managers may want to increase the size of their firm as in most cases their wage is a function of firm size (Mueller, 1969). Thus having responsibility for a larger firm means that the managers have to be paid a lot of remuneration. In addition, most large firms set compensation by looking at the compensation of peer group executives, and size is the main determinant of which firms are in a peer group. Murphy (1999) provides a review of the compensation literature and observes that many studies report a strong link between firm size and managerial rewards (see e.g. Roberts, 1956; Ciscel and Carroll, 1980; Agarwal, 1981). Bliss and Rosen (2001) examined the relationship between bank mergers and CEO compensation during 1986-1995 and found that acquisitions significantly increased CEO compensation even after accounting for the typical announcement date stock price decline. They argue that, although the decline in existing wealth partially offsets some of the subsequent salary gains, the vast majority of mergers increase the overall wealth of CEO, often at the expense of shareholders. Nevertheless, Anderson *et al.* (2004) examined bank CEO compensation changes associated with mergers among large banks in the 1990s and found no evidence of empire-building motives on the part of banks CEOs who engage in mergers. They found that changes in CEO compensation after mergers are positively related to anticipated gains from mergers measured at that announcement date.

Ravenscraft and Scherer (1987) argue that being in charge of a larger business and receiving a higher salary also brings increased status and power, and mergers constitute a rapid way of increasing balance sheet totals that attracts media attention when rankings are published. In addition, managers may also attempt to reduce insolvency risk through M&As by diversifying banks' portfolio below the level that is in shareholders' interest in order to increase their job security.

Finally, managers may also engage in empire-building for job security reasons rather than compensation or prestige. It has been

claimed by both financial analysts and researchers that, on average, acquisitions tend to occur between a large acquirer and a small target. Thus, the belief is that large banking organisations are less likely to be targets of hostile takeovers and hence it is less likely that the current management will be out of a job. Therefore firms may merge in order to become large themselves for the survival of the management team and not primarily for the benefit of the shareholders. An alternative hypothesis states that some mergers may have been motivated by managers' concerns, but by increasing the chances of becoming the target of friendly takeovers rather than hostile takeovers.

The numerous empirical event studies that found negative wealth effects for bidding banks' shareholders (e.g. Hawawini & Swary, 1990; Baradwaj *et al.*, 1992; Houston & Ryngaert, 1994; Madura & Wiant, 1994; Siems, 1996) potentially provide support to the above arguments, namely that many M&As are motivated by managers own motives rather than maximisation of shareholders' value.

Hubris Motives

An interesting hypothesis, proposed by Roll (1986), suggests that managers commit errors of over-optimism in evaluating M&As opportunities due to excessive prediction or faith in their own abilities. Consequently they engage in M&As even when there is no synergy. More specifically, the pride of bidders' management allows them to believe that their own valuation of the target is correct, even if objective information shows that target's true economic value, as reflected in its market valuation, is lower. Because of this arrogance (hubris) acquirers end up overpaying target firms, virtually transferring all gains from the transaction to the target shareholders.

As Gaughan (1996) points out, Roll did not intend the hubris hypothesis to explain all takeovers, but rather to reveal that an important human element enters takeovers when individuals are interacting and negotiating the purchase of a company. Thus, although hypothetically management's acquisition of a target should be motivated purely by a desire to maximize shareholder wealth, this is not necessarily the case, and the extent to which such motives play a role will vary from one

M&A to another. Arnold (1998) suggests that hubris may also help explain why mergers tend to occur in greatest numbers when the economy and companies generally have had a few good years of growth arguing that during such periods managers are feeling rather pleased with themselves.

1.3.1.2 External factors

The Group of Ten report (2001) highlights three major external forces that are creating pressures for change in the financial services industry and may help explain the recent pace of M&As activity: deregulation; technological advances, and globalisation of the market place. In addition, shareholder pressures and the introduction of the euro are also stated as additional forces. Finally, macroeconomic conditions may have either direct or indirect effects on banks decisions to be involved in M&As. All these issues are considered in turn below.

Deregulation and Laws

Over the last twenty years or so, following changes in the legal and regulatory framework in which financial institutions operate, many barriers to consolidation have been relaxed. There are, however, five main ways through which governments can influence the restructuring process (Group of Ten, 2001). These are:

1. Through effects on market competition and entry conditions (e.g. placing limits on or prohibiting cross-border mergers or mergers between banks and other types of service providers in the interests of preserving competition).
2. Through approval / disapproval decisions for individual merger transactions.
3. Through limits on the range of permissible activities for service providers.
4. Through public ownership of institutions.
5. Through effects to minimise the social costs of failures.

The liberalisation of geographic restrictions on U.S. banking institutions beginning in the late 1970s has often been cited as one of the main reasons for the rapid consolidation of the U.S. banking industry. Berger *et al.* (1999) argue that the prior geographic restrictions on competition may have allowed some inefficient banks to survive, and the removal of these constraints allowed some previously prohibited M&As to occur, which may have forced inefficient banks to become more efficient by acquiring other institutions, by being acquired, or by improving management practices internally. In addition, removal of in-state branching restrictions also increased consolidation in the US, as Banks Holding Companies tended to merge their subsidiary banks into branching systems.

Europe has also been undergoing deregulation over the last 50 years. Dermine (2002) mentions that the actions taken by the European Commission and the Council of Ministers can be divided into five main periods: the removal of entry barriers into domestic markets (1957-1973), the harmonisation of banking regulations (1973-1983), the completion of the internal market (1987-1992), the creation of economic and monetary union leading to the single currency (1993-1999), and the financial services action plan (1999-2005). Tourani-Rad and Van Beek (1999) argue that the merger wave in the European banking industry observed in the late 1980s as well as the late 1990s appear to be largely related to the Second Banking Directive. Under this directive, issued in 1989 and implemented in 1992, all credit institutions authorised in an EU country were able to establish branches or supply cross-border financial services in other countries within the EU without further authorisation, provided the bank was already authorised to provide such services in the home state. In other words, the EU banking directive permitted competition in the European marketplace through home country authorisation of entry, although banks had to operate under host country conduct of rules. This universal banking model adopted by the EU permitted banks to undertake investment banking activities, while leaving it to national regulators to control financial conglomerates, the ownership structure of the banks and their relationship with the industry.

Regulators (both national and European) often prevent M&As if the rise in concentration is expected to result in excessive increases in market power. For example, the Competition Commission in Britain blocked Lloyds TSB's 18.2 GBP billion hostile bid for Abbey National in July 2001, because the new bank would have dominated the segment of current accounts, with a 27% market share, and would have increased to 77% the market share of the top four British banks. Also in 2001, the European Commission opened an investigation into the announcement of 7.9 billion euro merger between Skandinaviska Enskilda Banken (SEB) and Foreningsparbanken (Swedbank) which would have resulted in the largest bank in Sweden that would probably have attained a dominant position in the domestic retail-banking sector. The two banks finally called off their plans to merge, blaming the European Commission's insistence that they should make large-scale divestitures in the retail banking segment for the deal to be approved, which would have undermined the logic of the deal.

It should be noted that while regulatory authorities have served to protect the public's interest in preserving competition in the market place, the national governments have also provided financial assistance or otherwise state aid to troubled financial institutions in periods of financial crises. For instance, in the US, the Federal Deposit Insurance Corporation (FDIC) provided financial assistance to allow healthy banks to purchase over 1000 insolvent US banks between 1984 and 1991 (Berger *et al.*, 1999), while a new 1991 rule allows the FDIC to takeover a financial institution whose capital falls below 2% of its risk adjusted assets, without waiting for further depletion of its capital base (Zanakis and Walter, 1994).

Technological Developments

Technology, apart from deregulation, has been considered a catalyst for the recent wave of bank M&As. As Goddard *et al.* (2001) point out technological advances are currently having a dramatic impact on the structure, operations and economies of European banking markets. It is obvious that the same applies for banking markets around the world. Overall, banks are involved in introducing new technologies in the following four main areas: customer-facing technologies, business

management technologies, core processing technologies, support and integration technologies (Goddard *et al.*, 2001).

Technological changes may affect the restructuring of financial services in three direct ways (Group of Ten, 2001). First, through increases in the feasible scale of production of certain products and services (e.g. credit cards and asset management). Second, through scaled advantages in the production of risk management such as derivative contracts and other off-balance sheet guarantees that may be more efficiently produced by larger institutions. Third, through economies of scale in the provision of services such as custody, cash management, bank office operations and research.

Goddard *et al.* (2001) review six studies that examined the impact of technological changes on bank costs in the US (Hunter and Timme, 1991; Humphrey, 1993), Japan (McKillop *et al.*, 1996), Spain (Maudos *et al.*, 1996), Germany (Lang and Welzel, 1996) and the EU in total (Altunbas *et al.*, 1999). Three conclusions are drawn from these studies: (1) Reductions in costs up to 3.6% were found; (2) The impact of technological change on costs seems to have accelerated during the 1990s; (3) Larger banks benefit more than smaller ones.

In general, technological developments, apart from deregulatory changes, have helped to alter the competitive conditions of the financial sector, at both the production and the distribution level, and have created greater incentives for new output efficiency (Group of Ten, 2001).

Globalisation

Globalisation has been characterised as a by-product of technology and deregulation. On the one hand, technological developments have decreased computing costs and telecommunications, while expanding capacity, thus making a global reach economically more feasible. On the other hand, deregulation has relaxed the restrictions in activities undertaken by foreign firms in both developed and developing countries around the world that has allowed entry into many markets (Group of Ten, 2001).

The globalisation process has also contributed to a shift from a bank-centred system to a market-based one (Group of Ten, 2001). Furthermore, the number of foreign banks has increased in every banking

market leading to intensified competition and reduced profit margins in many European national banking sectors (Goddard *et al.*, 2001). It is obvious that in such a competitive environment only the most efficient institutions will be able to survive in the long term, and M&As are an inevitable consequence of this endeavour.

Shareholder Pressures

The increased importance attributed to the “shareholder value” concept, has led naturally to a focus on the return on assets and return on equity as benchmarks for performance, especially by large well-informed investors. Thus, in a sense, managers are under pressure to increase profits in an environment of intense competition, and this can only be accomplished through the creation of new sources of earnings, generation of fee income, reduction of cost-to-income ratios, optimal use of excess capital, or for some institutions, recapitalisation after a major crisis (Group of Ten, 2001). Obviously, these goals can be achieved through business gains, enhancement or more effective balance sheet management. Another way, perceived to be an easier strategy for many institutions, is through M&As.

Introduction of the Euro

The introduction of the euro is considered to have an impact on the competitive environment in which financial institutions operate and consequently on the consolidation activity especially in the European arena. The Group of Ten (2001) report emphasises a number of ways through which the introduction of euro can motivate M&As. In summary, these are: the integration of money market, the impact of the euro on the treasury activities of the corporate sector, the integration of the capital markets and the government bond markets. Opportunities for cost savings or revenue enhancement arising from these changes are therefore potential motives for bank consolidation.

Macroeconomic Conditions

Macroeconomic conditions are considered to be another factor that could directly influence the decision of firms to merge with or acquire other

firms. For example, merger waves seem to coincide with economic booms (Mueller, 1989). By definition, during booms the economy enjoys a rapid growth rate and the stock market prices surge. Nelson (1959) reports that M&As are positively correlated with stock market prices. Furthermore, in some cases, macroeconomic changes lead to excess capacity and ultimately downsizing and exit (Ali-Yrkkö, 2002).

Macroeconomic conditions may also have an indirect effect on the decisions of banks to merge through their impact on banks' profitability. For example, the growth of GDP is expected to have a positive impact on banks' performance, according to the well-documented literature on the association between economic growth and financial sector performance (e.g. King and Levine, 1993; Levine, 1997, 1998; Rajan and Zingales, 1998). Inflation may also affect both the costs and revenues of any organisation including banks. Perry (1992) points out that the effect of inflation on bank performance depends on whether the inflation is anticipated or unanticipated. A number of studies (e.g. Molyneux and Thornton, 1992; Abreu and Mendes, 2001; Staikouras and Wood, 2003; Pasiouras and Kosmidou, 2005) have empirically examined the determinants of EU banks profitability and reported the existence of a significant relationship between profits and various macroeconomic factors, such as GDP, inflation, unemployment and interest rates.

1.3.2 Practitioners' views on reasons for banks M&As

At this point, apart from the reasons that have been proposed by academic scholars and researchers, using either theoretical formulations or empirical evidence, it is essential to mention the views of practitioners (i.e. bankers and financial industry professionals). We have referred at various places to the finding of two main reports, conducted by the European Central Bank (ECB) and the Group of Ten respectively, that among others have examined the issue of the causes of M&As in the financial sector. However, it makes sense to offer a more comprehensive picture of the opinions of banking professionals to appreciate the main factors involved in bank M&As.

The European Central Bank Report (2000)

In order to reveal the motives for M&As in the EU banking sector from an industry perspective, the ECB examined the views of bankers through a process of interviews and consultation of the views of bank supervisors. The report was prepared by the Banking Supervision Committee (BSC) and covered the period 1995 to 2000. The main reasons that were identified in the analysis of the rationale for M&As are presented in Table 1.7, and summarized below.

With respect to the domestic bank M&As, economies of scale was found to be the main rationale for small bank M&As, which sought to obtain critical mass to explore synergies arising from size and diversification. In addition, M&As were also intended to avoid takeovers. As for the large banks, M&As often reflected a repositioning of the institutions involved. The increase in size reflected a need to become big enough to compete in the domestic market. Larger banks aimed at increased market power and a larger capital base, with a greater focus on increasing revenue, in contrast to smaller banks, which sought to explore synergies and avoid the threat of takeover. With regard to international bank M&As, the need to be big enough for regional or global markets indicates that size is the main motive, although for international conglomerates economies of scale and scope are also important.

As for domestic conglomerates, economies of scope were also indicated as the main motive. These financial institutions aimed at achieving economies through cross-selling of different financial products to the larger customer base of the combined entity, utilizing new distribution channels to make more efficient use of the fixed costs associated with the banks' branches. Specifically, the amalgamation of banks and insurance firms occurred to achieve risk and income diversification and consequently to reduce sensitivity to economic cycles. With regard to international conglomeration, the two major reasons, as noted above, were economies of scope and size, aimed principally at increasing revenue through cross-selling and strong brands that is attractive to large international clients.

Table 1.7 Main motives and possible rationalisations for the four types of Bank M&As

	Within one country	In different countries
	Domestic bank M&As	International bank M&As
Between credit institutions	<ul style="list-style-type: none"> - Economies of scale linked to costs are the main motive - Cutting distribution networks and administrative functions (rationalisation), including information technology and risk management areas 	<ul style="list-style-type: none"> - Size, i.e the need to be big enough in the market, is the main motive - Matching the size of clients and following clients - Possible rationalisation within administrative functions
Across different sectors	<p>Domestic conglomeration</p> <ul style="list-style-type: none"> - Economies of scope through cross selling is the motive - Risk and revenue diversification - Optimum usage of complementary distribution networks - Possible rationalisations within administrative functions may lead to economies of scale linked to costs 	<p>International conglomeration</p> <ul style="list-style-type: none"> - Economies of scope through cross-selling together with size are the two main motives - Risk and revenue diversification - The M&A offers few rationalisations because institutions are in different countries and subject to different regulation and practices

Source: ECB (2000)

The Group of Ten Report (2001)

In a similar manner the Group of Ten conducted interviews with 45 selected financial sector participants and industry experts from the G10 countries². The interviewees were asked for their opinions on the basis of a common interview guide, which listed a number of factors leading to M&A activity. Table 1.8 lists the factors that formed the basis for the interviews.

² The G10 comprises the following set of countries: Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, Switzerland, United Kingdom, and United States. Note there are eleven countries in the G10. The "ten" refers to the members of the Group who constitute the members of the International Monetary Fund. Switzerland, which joined the Group in 1984, is the eleventh member. Also added in the report were surveys for Australia and Spain.

Table 1.8 The interview guide used in the Group of Ten (2001) report

List of Factors		
Motives for consolidation	Forces encouraging consolidation	Forces discouraging consolidation
Cost savings attributable to:	Technology:	Market inefficiencies
- Increased size (economies of scale)	- Information and communications	Legal and regulatory constraints
- Product diversification (economies of scope)	- Financial innovation	Cultural constraints (cross-firm and cross-segment)
Revenue enhancement due to:	Globalisation:	Deconstruction (breaking up of institutions into more specialized units)
- Increased size (ability to serve larger customers)	- expansion of domestic and international capital markets	Outsourcing
- Product diversification (ability to provide "one-stop shopping")	- trade in non-financial products	Internet
Risk reduction due to product diversification	- Institutionalisation of savings	
Change in organisational focus	- creation of euro	
Increased market power	Deregulation	
Managerial empire building and retrenchment	Privatisation	
	Bailouts or financial conditions of firms	
	Climate of capital markets	

Tables 1.9 and 1.10 summarize the main findings for the US and a selection of the EU countries that were considered in the report, outlining the particular firm-level motives as well as the external factors for M&As. In general, irrespective of the county of origin, the main reasons concerning firm-level motives can be summarised as follows.

With respect to within-country, within-segment mergers, the single strongest motivation factor has been the desire to achieve economies of scale. Other important motivating factors were revenue enhancement due to increased size and increased market power. It is important to mention at this point that most interviewees interpreted market power to mean market share, rather than the ability to influence price. Risk reduction due to product diversification and change in organisational focus were considered largely irrelevant for this type of consolidation, while economies of scope, revenue enhancement due to product diversification,

and managerial empire building and entrenchment were considered to be more important.

Table 1.9 Firm level motives for M&As in the financial sector in the US and selected EU countries (Group of Ten report), Part A

Country	Motives
US	<p>Cost savings due to economies of scale: moderately or very important as a driver of within-segment, within-country mergers and slightly important or not a factor in the case of cross segment mergers and cross-border mergers.</p> <p>Revenue enhancement due to product diversification: moderately to very important in motivating cross-segment mergers, both within and across borders.</p> <p>Change in organisational focus: mostly unimportant</p> <p>Market Power and Managerial empire building: various views.</p>
France	<p>Cost cutting (dominant motive), Revenue enhancement (less important)</p>
Germany	<p>Consolidation within segments at the domestic level: Cost savings and revenue enhancements attributable to size (primary motives), increased market power (second most cited motive).</p> <p>Consolidation across segments at the domestic level: Economies of scope (cost savings and revenue enhancement due to product diversification) and improvement in risk management (consolidation of banks with insurance companies), expertise in securities activities (consolidation of investment and commercial banks).</p> <p>Not fundamentally different motives in the case of cross-border consolidation.</p>
Italy	<p>Consolidation within segments at the domestic level: Cost savings attributable to increased size (main motive), revenue enhancement due to product diversification and to a lesser extent to increased size, as well as need of banks to increase their market share were mentioned as other relevant motives. Geographical diversification was also mentioned as an important factor for risk diversification and increased market share.</p> <p>Consolidation across segments at the domestic level: Product diversification (main motive).</p> <p>Cross-border operations: Revenue enhancement due to increased size tends to become more important, whereas the cost saving argument loses some of its relevance.</p>
UK	<p>Consolidation within sectors: Cost savings attributed to increased size (most important), increased market power and managerial empire building.</p> <p>Across sectors: Revenue enhancement due to size and due to product diversification were most important; managerial empire building continued to rate as an important motive costs savings due to size dropped to slightly important.</p> <p>Cross-border: revenue enhancement due to increased size and managerial empire building.</p>

Table 1.9 Firm level motives for M&As in the financial sector in the US and selected EU countries (Group of Ten report), Part B

Country	Motives
Belgium	The leading motive was a combination of cost savings and revenue enhancement. Risk reduction and managerial empire building were not found to be very relevant.
Netherlands	Cost savings and revenue enhancement were the main motives, product diversification was also important particularly for consolidation across segments, though it last was connected to revenue enhancement rather than economies of scope or risk reduction. Psychological motives have been moderately important, particularly the fear of becoming a takeover target, as was the shareholders pressures to create value.
Spain	The most important factor has been cost savings due to economies of scale. Attainment of critical mass for three main reasons: face the upcoming European consolidation, increase market share, defend against possible hostile acquisitions. Cross-border: revenue enhancement was the main motive, cost savings (economies of scope) was also important. Mixed opinions regarding risk reduction.
Sweden	Economies of scale was one of the main motives for consolidation. Shareholder pressures and the shift to offering retail customers more comprehensive service and integrated asset and liability management were additional motives. Empire building and psychological factors were also cited as potential main motives. Cross-border consolidation: mention was made of revenue enhancement due to geographic expansion.

Source: Group of Ten (2001)

Turning to within-country, across-segment mergers, the most important motive appears to be revenue enhancement due to product diversification, or the ability to offer customers “one-stop shopping”. The desire to achieve economies of scope was perceived by interviewees to be the second most important motive. Economies of scale, revenue enhancement due to increased size, risk reduction due to product diversification, change in organizational focus, market power and managerial empire building and entrenchment were all considered to be slightly less important factors.

With regard to within-segment, cross-border consolidation, the strongest motives were the desire to achieve increased market power and revenue enhancement through both size and product diversification.

Finally, with regard to cross-segment, cross-border consolidation, revenue enhancement was considered to be a strong motivator, but increased market power was viewed as only slightly important.

Table 1.10 Recent external causes of M&As in US and selected EU countries (Group of Ten report), Part A

Country	External factors
US	Domestic consolidations- Most important: improvements in information and communications, technology, deregulation (especially interstate banking), bailouts (particularly in the last 1980s and early 1990s) and the climate of capital markets. Cross-border consolidation: Expansion of domestic and international capital markets.
France	Information technology, deregulation and privatisation.
Germany	Consolidation within segments at the domestic level: Technology was underlined by all interviewees, expansion of domestic and international capital markets was mentioned by all participants, euro was often cited as an important factor as well. Consolidation across segments at the domestic level: far lesser role of technology due to technological discrepancies and euro also loses much of its significance. Cross-border consolidation: euro was widely cited as an essential encouraging factor, deregulation is important as well, role to technology decreased.
Italy	Information technology (primary factor), euro (second important factor) were the most important external factors. Deregulation has also played an important role over the last years, though it has in current times exhausted its effect. Privatisation was regarded as an additional important factor. Across segments: institutionalisation of savings tends to become more important Cross-border operations: Globalisation was more important compared to other less important such as privatisation and resolution of crises.
UK	Within segments and across segments: Information & Communication technology and e-commerce were ranked highest, while deregulation and privatisation and the creation of euro were insignificant. Across borders: the creation of euro and institutionalisation of savings were ranked highest, followed by e-commerce, deregulation and privatisation.

Table 1.10 Recent external causes of M&As in US and selected EU countries (Group of Ten report), Part B

Country	External factors
Belgium	Introduction of euro and globalisation and favourable climate of capital markets. The development in information technology and disintermediation were also identified as factors.
Netherlands	The development of technology was identified as one of the main factors. Deregulation was also commonly mentioned. Of the factors related to globalisation, the introduction of the euro and the process of European integration in general were mentioned. One interviewee highlighted the high stock prices.
Spain	Bailouts, deregulation and the creation of euro, were the main forces. Expansion of domestic and international capital markets was also cited, as was the climate of capital markets. Mixed opinions regarding technology issues. Cross-border consolidation: deregulation, privatisation and bailouts were mentioned as the most important forces.
Sweden	Regarding technology issues, the opinions were mixed. Globalisation was thought to be a minor factor, while deregulation and privatisation were not regarded as important forces in 1990s.

Source: Group of Ten (2001)

Turning to external forces encouraging consolidation, technological advances were considered to be the most important force, especially with regard to within-country, within-segment combinations. Among them, improvements in information and communications technology were ranked the most important, followed by financial innovation, while electronic commerce was viewed as less important. Over half of the respondents also indicated that deregulation was equally important as a factor encouraging consolidation for domestic, within-segment institutions (with over one third ranking it as a very important factor). The responses regarding other types of consolidation were more or less the same. Globalisation of the non-financial sector did not rate as an important factor encouraging financial consolidation, while the institutionalization of savings was considered to be somewhere between “moderately important” to “very important” factor encouraging consolidation (by 50% to 60% of respondents for each type of consolidation considered). Finally, with respect to the influence of euro,

the responses were mixed with the views varying among locations. Interviewees from euro area countries tended to rank this factor much higher than those outside the euro area. Nevertheless, some respondents indicated that the euro was likely to become a more significant force in the future than it has been to date.

1.4 Studies on Banks' M&As

This section provides a brief review of the empirical studies that have examined other aspects of banks' M&As. According to Berger *et al.* (1998) the majority of these studies can be classified into the following categories: (1) studies that examine the characteristics of the banks involved in M&As, (2) studies that examine the determinants of the premium paid for the target, (3) Studies that examine the consequences of M&As on operating performance, (4) Event studies of the merged banks' stock performance around the M&A announcement date, and (5) The consequences of banks M&As on other firms.

A large body of literature exists for each of the above areas. Since our empirical focus is confined to the development of acquisition prediction models, it is only appropriate to discuss the main conclusions of a selection of studies under the categories above³, and refer the reader to Rhoades (1994, 1998) and Berger *et al.* (1998) for detailed surveys of the empirical evidence. However, we shall also discuss separately (in the last sub-section) a few studies that have focused on the EU banking sector.

1.4.1 Characteristics of banks involved in M&As

Studies that fall within this category are those of Hannan and Rhoades (1987), Moore (1996), Hadlock *et al.* (1999) and Wheelock and Wilson (2000, 2004).

Hannan and Rhoades (1987) examined the relationship between banks performance and the likelihood that a bank will be acquired. They

³ We discuss just four of the five categories as the last one examines the impact of banks M&As on other firms (e.g. customers) and not on banks themselves.

also examined the influence of additional bank and market characteristics on the likelihood of acquisition. Their sample consisted of 201 acquired banks (in Texas between 1970 and 1982) and 845 non-acquired banks, and they employed multinomial logit analysis to account for the fact that any bank could experience the following three events: (a) acquired by a bank operating within its market, (b) acquired by a bank operating outside its market, (c) not be acquired. Their results can be summarized as follows: (1) no evidence was found to support the argument that poorly managed banks were more likely to be acquired than well managed banks, (2) market concentration was found to reduce the likelihood of being acquired from within the target bank's market, but not from outside the market, (3) high capital asset ratios were found to reduce a bank's attractiveness as an acquisition target, (4) larger market share and operation in urban areas increased a bank's attractiveness as a target, to banks not operating in the same market.

Moore (1996) also employed multinomial logit analysis to examine the characteristics of US banks acquired between June 1993 and June 1996. His results showed that the probability of being acquired tended to be higher for banks with low profitability, slow asset growth, low market share, low capital to asset ratio, and low ratio of non-small business loans to total loans. Small business loans per se and bank size, on the other hand, were not found to have a significant influence on the probability of being acquired.

Hadlock *et al.* (1999) examined a sample of 84 US banks that were successfully acquired between 1982 and 1992 and compared them to a matched sample of 84 banks that were not acquired. The authors analysed the effect of variables related to management incentives, corporate governance and performance on the likelihood of a bank's acquisition. Both univariate and multivariate methods were employed. They examined the mean and median values of the variables to identify any systematic differences between the two sample groups. They also estimated, in addition, four logit models using different explanatory variables and subsamples. They found that banks with higher levels of management ownership are likely to be acquired, especially in acquisitions where the managers of the acquired banks leave their job following the acquisition. They also found little evidence for other

incentive, governance or performance variables to support the probability of a bank's acquisition.

Wheelock and Wilson (2000) attempted to identify the characteristics that increased the probability for a US bank to disappear either by being acquired or by failing, focusing especially on how managerial efficiency affected the likelihood of either outcome. Unlike the previous studies that used logit models, they used proportional hazard models with time-varying covariates to examine a large dataset of US banks with assets over \$50 million. They found that banks which were more close to failing were those that: (1) were less well capitalized, (2) had high ratios of loans to assets, (3) had poor-quality loan portfolios, (4) had low earnings, (5) were not located in states where branching was permitted, (6) had inefficient management as reflected in measures of cost or technical efficiency. As for the probability of acquisition, they found it to be higher for banks that: (1) had lower capitalization, (2) had lower return on assets, (3) were characterised by cost efficiency, (4) were located in states permitting state-wide branching.

In a later study, Wheelock and Wilson (2004) used a two-part hurdle model to investigate the determinants of the expected number of mergers and the volume of deposits a bank absorbs through a merger within a fixed interval of time. The sample consisted of all U.S commercial banks with available data that were involved in over 3,000 mergers, which occurred between the second quarter of 1987 and the first quarter of 1999, while numerous explanatory variables were used as proxies of regulatory process, market characteristics, capital adequacy, asset quality, management, and earnings. The authors concluded that: (1) regulatory approval process served as a constraint on bank merger activity, (2) the quality of a bank's management, as reflected in the CAMEL component rating for management was positively related to the expected number of mergers while downgrade in CAMEL and Community Reinvestment Act (CRA) ratings reduced the expected number of mergers a bank will engage in, (3) the expected number of mergers fell with an increase in the concentration in the market that a bank is headquartered, (4) location in an urban market greatly increased the expected number of mergers a bank will engage over time, (5) a bank's size strongly influenced the expected number of mergers a bank

will engage in, and (6) an increase in core deposits, and increases in some indicators of asset risk, raised the expected number of mergers.

1.4.2 Premium paid on banks' M&As

Several studies have examined the size of the merger premium paid in the bank M&As literature. These studies have used purchase price-to-book value or similar ratios of the target bank and other key characteristics of the banks to investigate the determinants of the magnitude of premiums paid.

Early studies are those of Beatty *et al.* (1987), Cheng *et al.* (1989), Rhoades (1987), Fraser and Kolari (1987), Rogowski and Simoson (1987), and Hunter and Wall (1989). Beatty *et al.* (1987) examined the purchase price-to-book ratio of bank takeovers in 1984 and 1985. Cheng *et al.* (1989) investigated 135 mergers in the Southeast US that occurred between 1981 and 1986 and related the merger premiums to the characteristics of both acquirers and targets. Rhoades (1987) examined 1,835 bank mergers for the period 1973 to 1983. Fraser and Kolari (1987) examined the impact on pricing of 217 mergers in 1985 while Rogowski and Simonson (1987) studied pricing in 264 bank mergers between the beginning of 1984 and the third quarter of 1985. Hunter and Wall (1989) differentiated their study by using cluster analysis, examining a sample of 559 bank mergers that occurred during the period 1981-86 to reveal the financial characteristics that were highly valued by acquiring banks and systematically associated with attractive purchase prices. They found that the most valued characteristics in target banks included above-average profitability, faster deposit and asset growth, a higher ratio of loans to earning assets and judicious use of financial leverage.

Table 1.11 summarises the findings of some recent studies that have examined the determinants of bank merger pricing, these being conducted mainly over the period covering the last two decades. The majority of these studies suggest that acquirers are willing to pay more for targets that operate with lower overhead expenses and generate higher returns. Furthermore, variables such as bank growth, market growth, method of accounting (purchase or pooling), type of deal

(intrastate or interstate), and market concentration were found to be significant in explaining the magnitude of acquisition premiums.

Table 1.11 Summary of studies on premium paid in bank M&As conducted over the last decade, Part A

Author(s)	No of bank mergers	Period studied	Main Results
Adkisson & Fraser (1990)	174	1985-86	Capital ratio, deal term (percent of acquisition price paid in cash), target bank's ROA and change in population in the target market area were significant at the 10% level.
Frieder & Petty (1991)	164	1984-86	Profitability (measured by ROE) and growth (measured by market characteristics – state deposit growth and expected future population) were significant positive determinants of premiums paid in mergers. Charge-offs to total loans had a negative impact on the premiums and was significant at the 1% level.
Palia (1993)	137	1984-87	Merger premium was related to the characteristics of both acquirer and target banks and the regulatory environments in both acquirer and target bank states. The separation of ownership and control in acquirer and target banks had also a significant effect on merger premiums.
Shawky <i>et al.</i> (1996)	320	1982-90	Higher merger premiums were paid for (i) smaller size targets (ii) targets with higher return on common equity (iii) targets with higher leverage (iv) targets in a different state than the bidder (v) transactions carried out through exchange of stock as opposed to cash purchase.
Hakes <i>et al.</i> (1997)	868	1982-94	The presence of state deposit caps reduced the premium paid. The impact of deposit caps was not constant across different sized banks. The premium paid to moderate size targets (assets between \$77 million and \$204) was greatly reduced while that paid for small and large banks was reduced less consistently.

Table 1.11 Summary of studies on premium paid in bank M&As conducted over the last decade, Part B

Jackson & Gart (1999)	200	1990-96	Target core deposits, target leverage, target ROA, accounting method, and a factor representing the target's state deposit cap restrictions were found statistically significant at the 1% level. Furthermore, target's non-performing assets, an intra-state variable and a combined factor of intra-state variable and relative size were significant at the 5% level.
Scarborough (1999)	243	1989-96, 1997-98 and 1989-98	Four variables were significant for all three periods. These were: accounting method, deal size, target's equity to total asset ratio, target's bank ROAA. Three more variables (target's size, percent of non-performing assets, whether the merger was intra-state or inter-state) were found to be statistically significant for at least one period.
Jitraphai (2000)	214	1989-98	Five variables were statistically significant in explaining merger premiums (i) target bank's ROA, (ii) capital asset ratio, (iii) type of deal (interstate or intrastate merger), (iv) accounting method (purchase or pooling), (v) time trend variable.

1.4.3 Evidence on merged banks' operating performance

Studies in this category have typically examined changes in accounting data, before and after the mergers to determine if there have been any significant changes in the merged banks' operating performance (OP). In these studies, statistically significant improvements in profitability, increases in operating efficiency, rapidly growing interest revenues, reduction in costs, more efficient asset management and decreased risk in the post-merger institutions are assumed to be indicators of successful mergers and potential reasons for the M&As themselves. Rhoades (1994) provides a review of 19 operating performance studies that were conducted between 1980 and 1993, while Berger *et al.* (1999) provide a review of more recent ones. These studies can be distinguished between

those that use univariate t-tests and those that estimate efficiency usually measured by the best-practice cost or profit efficiency frontier.

Univariate T-Test

These studies employ univariate t-tests to compare profitability ratios such as return on assets (ROA) and return on equity (ROE) and cost ratios such as costs per employee or assets before and after M&As (e.g. Spindt & Tarhan, 1992; Rhoades, 1986, 1990; Rose, 1987; Srinivasan, 1992; Srinivasan & Wall, 1992; Cornett & Tehranian, 1992; Linder and Crane, 1993; Peristiani, 1993; Vander Vennet, 1996). Some of these studies have found improved ratios associated with M&As although others have found little or no improvement in these performance ratios. For example, Rose (1987) examined 106 bank mergers between 1970 and 1985 and found that profitability did not increase for the acquiring banks post-merger. Similar results were obtained by Linder and Crane (1993), who examined 47 M&As that occurred between 1982 and 1987 and found no improvement in either ROA or growth in operating income. By contrast, Cornett and Tehranian (1992) found improvements in return on equity as well as operating cash flow owing to increases in employee productivity, asset growth, loans and deposits. Spindt and Tarhan (1992) examined 79 small mergers and 75 medium-to-large mergers and found improvements in ROE, margin and employee cost or sizes of mergers compared to a control sample. Peristiani (1993) found some improvement in ROE for the combined entities following merger but no improvement in cost ratios.

A problem with drawing conclusions from these studies is that simple ratios (either profit or cost) incorporate both changes in market power and changes in efficiency, which cannot be disentangled without controlling for efficiency. In addition, the use of cost ratios does not account for the fact that some product mixes cost more to produce than others (Berger *et al.*, 1999).

Efficiency Studies

In an attempt to overcome the problems associated with the use of simple ratios, a number of studies have examined the effect of M&As on banks performance using an efficiency frontier function methodology, such as the econometric frontier approach (EFA), the thick frontier approach (TFA), the distribution free approach (DFA), and the data envelopment analysis (DEA).

The cost-efficiency studies employ cost functions to control for input prices, product mix and other factors. Berger *et al.* (1999) argue that cost-efficiency studies are superior to the cost ratios studies, in that by controlling for prices, they are able to disentangle efficiency changes from changes in market power, which may be incorporated into prices. Nevertheless, despite the differences in methodology from the univariate cost ratio studies, the results of most cost-efficiency studies have been quite similar. As Berger *et al.* (1999) point out, the studies of US banking generally show very little or no cost-efficiency on average from the M&As on the 1980s (e.g. Berger & Humphrey, 1992; Rhoades, 1993; DeYoung, 1997, Peristiani, 1997) while the studies that use data from the early 1990s provide mixed results (e.g Rhoades, 1998; Berger, 1998). Probably the potential gains from consolidating branches, computer operations *etc.*, may have been offset by managerial inefficiencies or problems in integrating systems (Huizinga *et al.*, 2001).

The studies on profit efficiency consequences of M&As are related to the scale scope, product mix and efficiency effects for both costs and revenues and might also include at least some of the diversification effects. The theoretical appeal of working with the profit function is that it accounts for the revenue effects as well as the cost effects of operating at incorrect levels or mixes of inputs and outputs (Akhavein *et al.*, 1997). Akhavein *et al.* (1997) analysed a sample of mega-mergers (involving banks with assets exceeding \$1 billion) that occurred in the 1980s and found that on average, mergers helped to improve profitability especially when both banks were relatively inefficient prior to the merger. The improvement in profit efficiency was mainly caused by risk diversification following a change in the output mix in favour of more loans and fewer securities holdings. Nevertheless, their measure of profit

did not account for changes in risk that could result from such a portfolio switch, assuming that equity markets would recognise and account for any such change. Berger (1998) found similar results in a study that included all US bank mergers, both large and small, from 1990 to 1995.

Overall Assessment of Operating Performance Studies

As Houston *et al.* (2001) mention the mixed results of the literature that examines changes in the operating performance (OP) of merged banks are not surprising given the numerous empirical difficulties associated with these studies. The time period considered is one of the problems. Rhoades (1994) points out that the OP studies typically analyse performance for a period of one to six years after a merger occurs and during these years, many factors unique to the merged firm, other than the merger itself, may affect the firm's efficiency or general performance. Similarly, even if mergers improve performance, accounting based studies can fail to detect it because the lags between the completion of mergers and the realisation of operating improvements can be long and varied (Houston *et al.*, 2001). In their study, Linder and Crane (1993) found that merging banks did not improve their operating profit margins significantly during the first 2 years following the merger, while improvements began to occur after 3 years. A selection bias problem also exists with respect to the industry benchmark since it is difficult to construct benchmarks of non-merged banks in a rapidly consolidating industry (Houston *et al.*, 2001). Finally, the potential inaccuracies of accounting information in measuring economic value and accounting rules governing valuation of assets may also affect the observed results (Went, 2003). Nevertheless, despite these shortcomings, as Rhoades (1994) argues, the OP studies have the advantage of focusing on actual observed operating results of a merger rather than the expectations around the announcement date as event studies do.

1.4.4 Evidence on merged banks' stock market performance

Event studies typically examine the impact of merger announcement on share prices of the acquiring banks and/or the target banks and/or the combined entities around the announcement period. Changes in share prices, adjusted using a marked model for changes in the overall stock, provide an estimate of the anticipated effect of M&As on the future profits of the consolidate institutions. Positive abnormal returns reflect a positive view of the event, while negative abnormal returns reflect the opposite. Although the underlying procedures for estimating the performance effects are more standardised in event studies than in operating performance studies, the former exhibit a great deal of variation with respect to sample size, number of merger announcements studied, period of time over which the market model is estimated, period of time over which abnormal returns are calculated and so on (Rhoades, 1994). The results for the US are mixed, and the outcome basically depends on whether it examines the share price of target bank, acquirer bank or the combined entity (on an aggregate basis).

Rhoades (1994) provides a comprehensive summary of 39 US bank M&As performance studies published during 1980-39, 21 of which used event study methodology. The author concludes that the main findings of these event studies are not consistent. For target banks, only one study found no abnormal returns while eight studies found significant positive abnormal returns. For acquiring banks, seven studies found that a merger announcement had a significant negative influence on the returns to shareholders, while seven others found no significant effect on the acquiring bank's stock return, three studies found positive returns, while four found mixed results.

More recent studies have examined not only the returns of targets or acquirers but also the net wealth changes in stock prices by incorporating both stock returns of the acquiring and the target bank during the event period as well. This net wealth effect is usually calculated as some type of market value weighted sum of the acquirer and the target. Table 1.12, taken from Beitel and Schiereck (2001), presents the findings of some event studies conducted between 1990 and

2000⁴. In general, these studies confirm the findings of earlier studies as it concerns the returns to bidders' and targets' shareholders. Furthermore, a large part of the recent empirical research also aims at explaining empirically the observed results. Among others such studies are those of Hawawini and Swary (1990), Houston and Ryngaert (1994), Madura and Wiant (1994), Becher (2000), DeLong (2001), Zolo and Leshchinskii (2000), and Banerjee and Cooperman (1998).

Table 1.12 Findings of recent event studies on banks M&As, Part A

Authors (year)	Country	Period	Sample	Event window (days)	CAR ^a Bidder	CAR Target	CAR combined entity
Hawawini & Swary (1990)	USA	1972-87	123	[0, +5]	-1.7%	+11.5%	+3.1%
Baradwaj <i>et al.</i> (1990)	USA	1980-87	53	[-60, +60]	n.s.	25.9 – 30.3%	N.A
Allen & Cebenoyan (1991)	USA	1979-86	138	[-5,+5]	n.s.	N.A	N.A
Cornett & De (1991)	USA	1982-86	152	[-15, +15]	n.s.	+9.7%	N.A
Baradwaj <i>et al.</i> (1992)	USA	1981-87	108	[-5, +5]	-2.6%	N.A	N.A
Houston & Ryngaert (1994)	USA	1985-91	153	[-4L; +1A]	-2.3%	+14.8%	+0.5%
Madura & Wiant (1994)	USA	1983-87	152	[0, 36M]	-27.1%	N.A	N.A
Palia (1994)	USA	1984-87	48	[-5, +5]	-1.5%	N.A	N.A
Seidel (1995)	USA	1989-91	123	[-20, +20]	+1.8%	N.A	N.A
Zhang (1995)	USA	1980-90	107	[-5, +5]	n.s.	+6.9%	+7.3%

⁴ Some of the studies have been published after 2000. The dates of publication have been updated in Table 2.5 and may therefore not match exactly the ones in the study of Beitel & Schiereck (2001).

Table 1.12 Findings of recent event studies on banks M&As, Part B

Authors (year)	Country	Period	Sample	Event window (days)	CAR ^a Bidder	CAR Target	CAR combined entity
Hudgins & Seifert (1996)	USA	1970-89	160	[-1, +1]	n.s.	+7.8%	N/A
Siems (1996)	USA	1995	19	[-1, +1]	-2%	+13%	N/A
Pilloff (1996)	USA	1982-91	48	[-10, 0]	N/A	N/A	+1.4%
Houston & Ryngaert (1997)	USA	1985-92	209	[-4L, +1A]	-2.4%	+20.4%	N.A
Subrahmanyam <i>et al.</i> (1997)	USA	1982-87	263	[-1, +1]	-0.9%	N.A	N.A
Banerjee & Cooperman (1998)	USA	1990-95	92	[-1, 0]	-1.3%	+13.1%	N.A
Toyne & Tripo (1998)	USA	1991-95	68	[-1, 0]	-2.2%	+10.9%	-0.7%
Cyree & DeGannaro (1999)	USA	1989-95	132	[-1, 0]	n.s.	N.A	N.A
Kwan & Eisenbeis (1999)	USA	1989-96	3844	[-1, 0]	N.A	N.A	+0.8%
DeLong (2001)	USA	1988-95	280	[-10, 1]	-1.7%	+16.6%	n.s.
Tourani Rad & Van Beek (1999)	Europe	1989-96	17 targ. & 56 bid.	[-40, +40]	n.s	+5.7%	N.A
Cornett <i>et al.</i> (2003)	USA	1988-95	423	[-1, +1]	-0.78%	N.A	N.A
Cybo-Ottone & Murgia (2000)	Europe	1987-98	46	[-10, 0]	n.s.	+16.1%	+4.0%
Becher (2000)	USA	1980-97	558	[-30, +5]	-0.1%	+22.6%	+3.0%
Brewer <i>et al.</i> (2000)	USA	1990-98	327	{0, +1}	N.A	+8.3%- 14%	N.A
Houston <i>et al.</i> (2001)	USA	1985-96	64	[-4L, 1A]	N.A	N.A	+3.1%
Kane (2000)	USA	1991-98	110	[0]	-1.5%	+11.4%	N.A
Karceski <i>et al.</i> (2004)	Norway	1983-96	39	[-7, 0]	n.s	+8.4%	N.A

Table 1.12 Findings of recent event studies on banks M&As, Part C

Authors (year)	Country	Period	Sample	Event window (days)	CAR ^a Bidder	CAR Target	CAR combined entity
Zollo & Leshchinskii (2000)	USA	1977-98	579	[10, +10]	N.A	N.A	N.A

^aCAR = cumulated abnormal returns; n.s. = not significant, N.A= not research in the study. ^b Combined entity of the target and the bidder. ^c The authors study hostile (25.9%) and friendly (30.3%) takeovers. ^d The authors only study different sub-samples without representing results for the entire sample. ^e 4 days prior to the leakage date to 1 day after the announcement. ^f No tests for significance. ^g Completed deals.

Source: Beitel & Schiereck (2001)

Hawawini and Swary (1990) examined 123 US bank M&As that occurred between 1972 and 1987 and found M&As to be more favourable for bidders when the targets were small relative to bidders. Hawawini and Swary (1990) also found that mergers between the two banks located in the same state create more value than mergers between banks located in different states, as did Madura and Wiant (1994). Becher (2000) examined the impact of the method of payment on M&As success and found that bank M&As create more shareholder wealth for bidder's shareholders in cash transactions as compared to stock transactions. DeLong (2001) examined 280 US bank M&As over the period 1988 to 1995 and found that increased product/activity focus had a significantly positive effect on M&As success of US banks. Zolo and Leshchinskii (2000) studied 579 US bank M&As from the period 1977-88 and found that the size of the bidder had a significant negative impact on the acquirer's M&A success. Banerjee and Cooperman (1998) examined a sample of 20 acquirers and 62 targets that were involved in M&As in the US between 1990 and 1995 and found acquirers to be more successful if they were more profitable than their targets, thus providing support to the earlier studies of Hawawini and Swary (1990) and Houston and Ryngaert (1994) that had reached at the same conclusion.

Overall, the empirical evidence from event studies on bank M&As indicates that bank mergers do not create a statistically significant net increase in stock market value. Whereas the shareholders of targets earn

positive cumulative abnormal returns, the shareholders of the acquirers earn zero or negative cumulative abnormal returns suggesting a wealth transfer from the acquirer to the target shareholders in bank mergers. Due to the fact that acquirers often pay rather high premiums, these results are not surprising. Furthermore, the negative announcement return of bidding firms can reflect disappointment that the bidding banks is less likely to be acquired in the future (Houston *et al.*, 2001).

Overall Assessment of Event Studies

As Dunis and Klein (2005) mention, event studies are widely used to measure the effect of M&As announcements. Possible reasons are that stock price data are easily available, the calculations are straightforward and these studies do not rely on potentially misleading accounting data. Nevertheless, Rhoades (1994), Berger *et al.* (1999), Houston *et al.* (2001) and Dunis and Klein (2005) point out a number of problems that are associated with event studies. These can be summarized as follows: (1) Information may have leaked prior to the M&A announcement or markets may anticipate M&As prior to their announcements. These problems may be particularly severe during “merger waves”; (2) The period around the announcement event day for which abnormal returns are analysed varies greatly from study to study, and the results often appear to be sensitive to the time period chosen; (3) It is difficult to select a reasonable benchmark in a rapidly consolidating industry; (4) The analysis assumes efficient markets that immediately incorporate new information and relies on the assumption that the market expectations are a good prediction of the long-term effects of an event; (5) The samples are usually small as this method is limited to publicly traded banks. Nevertheless, many merging banks are of course not publicly traded, thus results based on publicly traded stocks are not necessarily representative of all bank mergers; (6) It is impossible to differentiate between the specific value of consolidation and other wealth transfer effects associated with the transaction and to separate the effect of the merger from the company specific events. This is especially true in the case of multiple acquisitions or where new shares are issued to finance the acquisition. It is also difficult to distinguish if gains come from efficiency gains or market power.

1.4.5 Evidence on European banks M&As

Vander Vennet (1996)

Vander Vennet (1996) used a sample of 422 domestic and 70 cross border acquisitions of European Community (EC) credit institutions that occurred over the period 1988-1993 to examine the performance effects of M&As. The analysis consisted of a univariate comparison of the pre- and post-merger performance of merging banks and covered a period starting three years before and ending three years after a takeover. The results of the study can be summarized as follows: First, domestic mergers among equal-sized partners significantly increased the performance of the merged banks. Second improvement of cost efficiency was also found in cross-border acquisitions. Third, domestic takeovers were found to be influenced predominantly by defensive and managerial motives such as size maximization.

Tourani Rad and Van Beek (1999)

Tourani Rad and Van Beek examined a sample of 17 target and 56 bidding European financial institutions (i.e banks, investment funds, building societies, and insurance companies) that merged between 1989 and 1996. Using event study methodology with daily data and the market model, the authors found that target's shareholders experienced significant positive abnormal returns while abnormal returns to bidders' shareholders were not significant. Furthermore, the results suggested that returns to bidders were more positive when the bidder was larger and more efficient. They also found that cross-border mergers did not outperform domestic ones. Finally, there was no significant difference between mergers before the implementation of the EU-second banking directive and those that took place after the implementation.

Cybo-Ottone and Murgia (2000)

Cybo-Ottone and Murgia also employed an event study methodology to examine a sample of 54 very large deals (above \$100mn), covering 13 European banking markets of the EU plus the Swiss market, that occurred between 1988 and 1997. It should be noted that the sample is

not limited to bank mergers but also contains 18 cross-product deals in which banks expand into insurance or investment banking. The authors found a positive and significant increase in value for the average merger at the time of the deal's announcement. However, the results were mainly driven by the significant positive abnormal returns associated with the announcement of domestic deals between two banks and by product diversification of banks into insurance. Deals that occurred between banks and securities firms and between domestic and foreign institutions did not gain a positive market's expectation.

Huizinga, Nelissen and Vander Vennet (2001)

Huizinga *et al.* (2001) examined the performance effects of European bank M&As using a sample of 52 bank mergers over the period 1994-1998. The authors first investigated the existence of economies of scale in European banking. They also estimated the level of operational and profit efficiency for the European banking sector and for the banks involved in M&As. In addition, they used the efficiency analysis to reveal information about the ex ante conditions that predict whether a particular merger was likely to yield significant gains. Finally, they investigated whether or not merging banks were able to reap benefits from an increased use of market power on the deposit market. The authors found evidence of substantial unexploited scale economies and large X-inefficiencies in European banking. Comparing merging banks with their non-merging peers, they found that large merging banks exhibited a lower degree of profit efficiency than average, while small merging banks exhibited a higher level of profit efficiency than their peer group. The dynamic merger analysis indicated that the cost efficiency of merging banks was positively affected by the merger, while the relative degree of profit efficiency improved only marginally. Finally, they found that deposit rates tended to increase following a merger, suggesting that the merging banks were unable to exercise greater market power.

Beitel and Schiereck (2001)

In a recent study, Beitel and Schiereck examined the value implications of 98 large M&As of publicly traded European banks that

occurred between 1985 and 2000. The perspectives of the shareholders of the targets, the acquirers and the combined, aggregate entity of the target and the bidder were considered. In addition to the entire sample, the authors also examined a number of sub-samples in an attempt to reveal the impact of geographic diversification, product/activity diversification, geographic and product/activity diversification, size, and time period on the abnormal returns. Furthermore, they also examined the deals between 1998 and 2000 using ordinary least square (OLS) regression analysis.

The authors report that for the entire sample the shareholders of targets earned significant positive cumulated abnormal returns in all intervals studied, while the shareholders of the bidding banks did not earn significant cumulated abnormal returns. From a combined view of the target and the bidder, European bank M&As were found to significantly create value on a net basis. Beitel and Schiereck argue that given the insignificant results for the bidding European banks the manager-utility-maximization hypothesis and the hubris-hypothesis cannot be supported in the case of Europe. They mention structural differences between Europe and the US such as the legal frameworks and the corporate governance structure of banks as the potential reasons of these differences between EU and US. Nevertheless, while examining the most recent deals that occurred between 1998 and 2000, they found significant negative cumulated abnormal returns and argue that it could be explained as a shift in these “European results”. The results of the sub-sample analysis can be summarised as follows: (1) Cross-border bank-bank transactions with a European focus significantly destroy value; (2) M&As leading to “national champions” that aim at maintaining the existing market power in known markets and thus with a narrow geographic focus are valued higher by the capital markets than growth oriented international transactions that contribute to a single European market; (3) The product/activity diversifying M&As from a target and an aggregate point of view have more favourable value implications than transactions between banks; (4) Deals with targets of a manageable size seem to have a significant positive impact on value.

Beitel, Schiereck, Wahrenburg (2002)

The study of Beitel *et al.* (2002) builds on and extends the study of Beitel and Schiereck (2001), by examining the same data set but with a different objective. The authors analysed the impact of 13 factors that include relative size, profitability, stock efficiency, market-to-book ratio, prior target stock performance, stock correlation, M&A-experience of bidders and the method of payment on M&A-success of European bank mergers and acquisitions, in an attempt to identify those factors that lead to abnormal returns to target shareholders, bidders shareholders, and the combined entity of the bidder and the target around the announcement date of M&A. To accomplish this task they used dichotomisation analysis with mean-difference tests and multivariate cross-sectional regression analysis.

Their results showed that many of these factors have significant explanatory power, leading the authors to the conclusion that the stock market reaction to M&A-announcements can be at least partly forecasted. More important, the returns to targets' shareholders are higher when the target: (i) is small compared to the bidder; (ii) has a good cost to asset ratio relative to the bidder, and (iii) has a poor past stock performance track record. The abnormal returns to bidders' shareholders are higher when a transaction is more focused and involves targets: (i) with higher growth rates; (ii) with a high market to book ratio, and (iii) less profitable than bidders. Finally, the returns for the combined entity were high for non-diversifying transactions, when the bidder was engaged in relatively few M&A transactions, and when the target exhibited: (i) a high market to book ratio and (ii) a poor past stock performance.

Diaz, Olalla, Azofra (2004)

Diaz *et al.* (2004) examined the bank performance derived from both the acquisition of another bank and the acquisition of non-banking financial entities in the European Union. The sample consisted of 1,629 banks, where 181 acquisitions were noted over the period 1993-2000. Using a panel data methodology, Diaz *et al.* (2004) found that the acquirer obtains some efficiency gain in bank mergers. They also found

some evidence on the impact of the takeover on the acquirer when acquiring non-bank firms and when the sample was split by type of acquirer (i.e. commercial banks, savings banks, cooperative banks). In particular the results reveal that the acquisitions of financial entities by European banks can increase their profitability. However, a lag of at least two years between the acquisition and the increase in performance was observed. The acquisition of other banks had an effect on acquirers' ROA as was revealed by the increase in the long-term profitability.

Lepetit, Patry, Rous (2004)

Lepetit *et al.* (2004) examined stock market reactions in terms of changes in expected returns to bank M&As that were announced between 1991 and 2001 in 13 European countries, by distinguishing between different types of M&As. More specifically, M&As were classified into several groups depending upon activity and geographic specialisation or diversification. To overcome some of the limitations of previous event studies they employed a bivariate GARCH methodology that allows for some beta movements. The results showed that there was, on average, a positive and significant increase in value of target banks, as well as, that the market distinguishes among the different types of M&As. A probit estimation that was used to further explore the sample by crossing the criteria of M&As classification revealed that the combination of activity diversification and geographic specialisation decreased the probability of having a negative abnormal return.

Dunis and Klein (2005)

The underlying approach in the study of Dunis and Klein (2005) was to consider an acquisition as an option of potential benefits. Hence, assuming semi-efficient capital markets, the market capitalisation reflects the market participant's view on the value of those benefits once the merger is announced. In this case, the share price, equivalent to the option, is the cumulated market value of target and acquirer prior to the announcement of the deal terms, while the exercise price is the hypothetical future market value of both companies without the merger. Therefore, the option premium gives the value of this option and should be equivalent to the takeover premium. This call option is in the money if

the market value of the merged entity exceeds the expected future market value of the two separate companies. The authors applied this real option pricing theory model to a sample of 15 European bank mergers announced between 1995 and 2000 to examine if these were possibly overpaid. The results showed that the option premium exceeded the actual takeover premium suggesting that, those acquisitions were not on average overpaid. Further analysis, assuming the option premium equalled the takeover premium, showed that either the implicitly assumed volatility was too low, the assumed time to maturity was very short and/or the assumed subsequent market performance was too optimistic.