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**EUROPEAN BANKING MERGERS:  
STOCK MARKET AND OPERATING PERFORMANCE  
EVALUATION**

**by**

**Ahmad Khalil Ismail**

A thesis submitted in partial fulfilment of the degree of Doctor  
of Philosophy in Industrial and Business Studies

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## **ABSTRACT**

There has been a new wave of merger and acquisitions (M&A) activity since the early 1990's across the world, much of this occurring in the financial services industry. This trend has affected Europe as well where the landscape of the financial services industry has been changing. This M&A activity in general has stimulated more in depth research to assess the consequences of the merger events, although comparatively little work has been done on M&A activity in the European financial services industry.

This thesis uses a market return approach and an operating performance approach to evaluate the M&As outcome in European banking. We document a minimal total return, and a smaller target return in comparison to US studies. The post-merger operating cash flow return on assets deteriorated but we also found a very minimal improvement in efficiency which was not supportive enough to boost the cash flow return on assets and the profitability of the merging partners, although these mergers were mainly motivated by synergy.

Deeper research may provide more interesting findings using clinical studies that seek as much detailed information about the merging partners as possible. It is also worth examining the pattern of managerial ownership and how it affects the merger outcome as this factor is an important one for regulators in the financial services industry.

# CHAPTER ONE: INTRODUCTION

## 1.1 Introduction.

Mergers or takeovers have always promised a faster mean for growth and expansion in the markets. Nevertheless as takeover activity continues, the debate over its merits has increased. Advocates of the benefits of takeovers cite evidence of substantial wealth gains at the time takeover is announced (Franks, Harris, Titman, 1991). Critics claim, however, that the positive announcement returns reflect optimistic expectations that fail to be realised in the medium or the long term.

Research in the field of M&A has been considerable and academics have used mainly two streams of methodologies to measure the takeover performance of the firms involved, the market returns studies and the operating performance studies.

The standard procedure used for estimating market returns is the event study methodology, which tends to estimate the unexpected change in the firm's share price around the announcement of a specific event. The outcome from market return studies has, in general, reached a consistent conclusion that the target shareholders gain, see for example; Mandelker (1974), Langetieg (1978), Asquith and Kim (1982), Asquith (1983), Firth (1980), Siems (1996), Houston and Ryngart (1994), Sudarsanam et al (1996), Hawawini and Swary (1990). The wealth position of the bidding shareholders however, is not so clear. The findings of some of the research done on UK data point to, at best, minimal gain to the bidder shareholders Dodd and Ruback (1977), Franks

and Harris (1989), Franks, Broyles, and Hecht (1977) and recently Cybo-Ottone and Murgia (2000) for a merger sample in European Banking. Other research findings contradict this conclusion and present evidence of negative gains to the shareholders of the bidder firm and a negative aggregated total gain such as: Houston and Ryngaert (1994), Sudarsanam et al., (1996), Hannan and Wolken (1989).

This latter result, of negative total gain, seems consistent with the outcome of the majority of the operating performance studies no matter what measures of performance the authors have used, see for example Meeks (1977), Spindt and Tarhan (1992), Linder and Crane (1992), Srinivasan and Wall (1992) and Rhoades (1993). But stands in sharp contrast to the findings in European bank merger (Vander Venet, 1996 and 1999a).

## **1.2 Research Questions.**

It seems therefore that the debate is still intense concerning the return to bidder shareholders and the total outcome of the merger. Therefore this thesis will try to answer the following questions:

1. What is the return to target and bidder shareholders for European Banks involved in merger and acquisitions?
2. How does the return change according to the characteristics of the deal?
3. Which factors influence these returns cross-sectionally?
4. What motivates banks to merge in Europe?
5. What is the change in shareholders wealth two years post takeover?

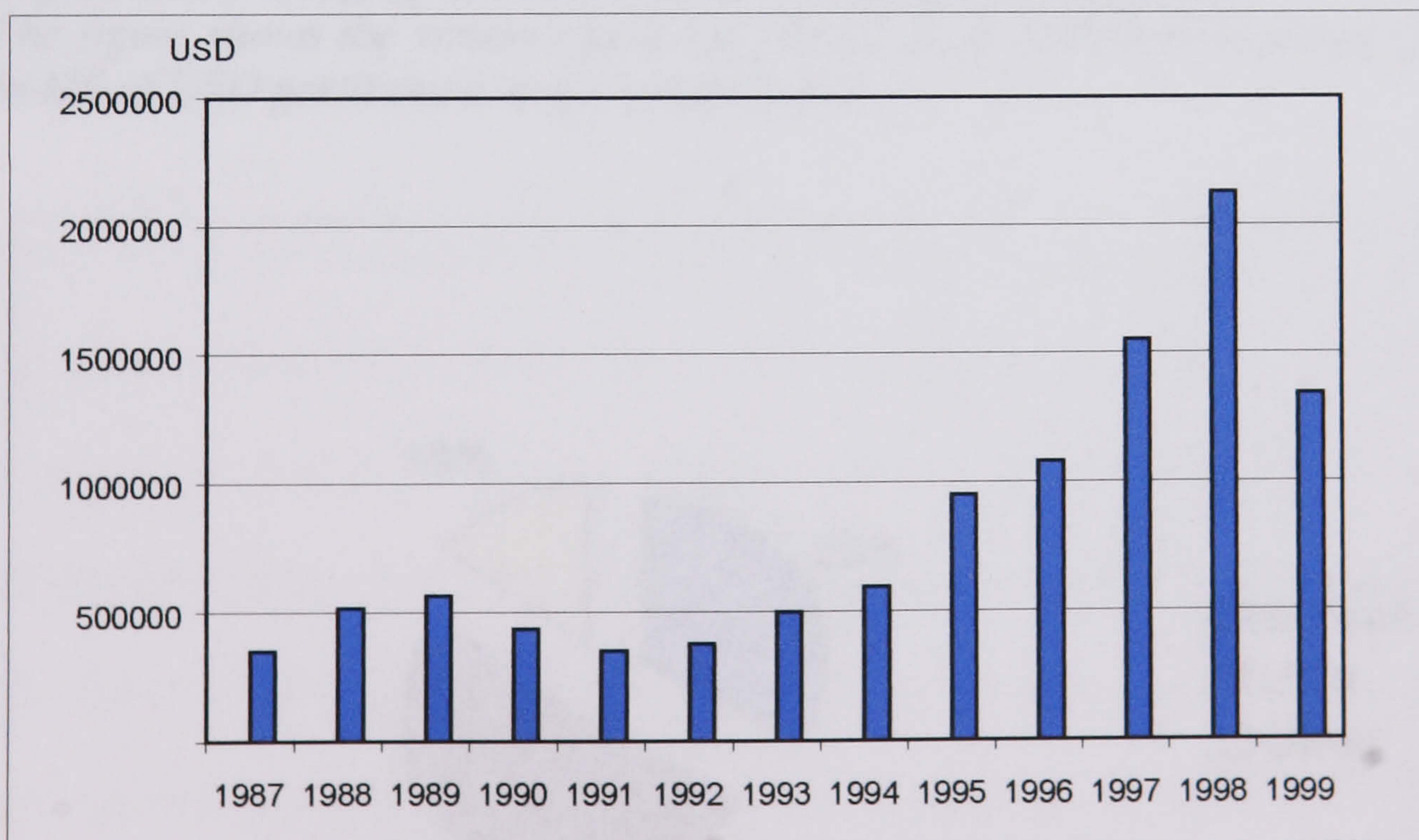
6. What is the source for value creation or destruction? That is, which bank performance components, post-merger, caused the change in wealth?
7. What pre-merger factors determine the post-merger performance of the merging parties?

### 1.3 Why is this research interesting and important?

The value of M&As deals that took place around the globe between Jan 1987 and Dec 1999 amounted to about USD 11,000 billion. The new merger wave started in the early 1990's and peaked in 1998 at almost USD 2,200 billion (see figure 1.1 and figure 1.2 below).

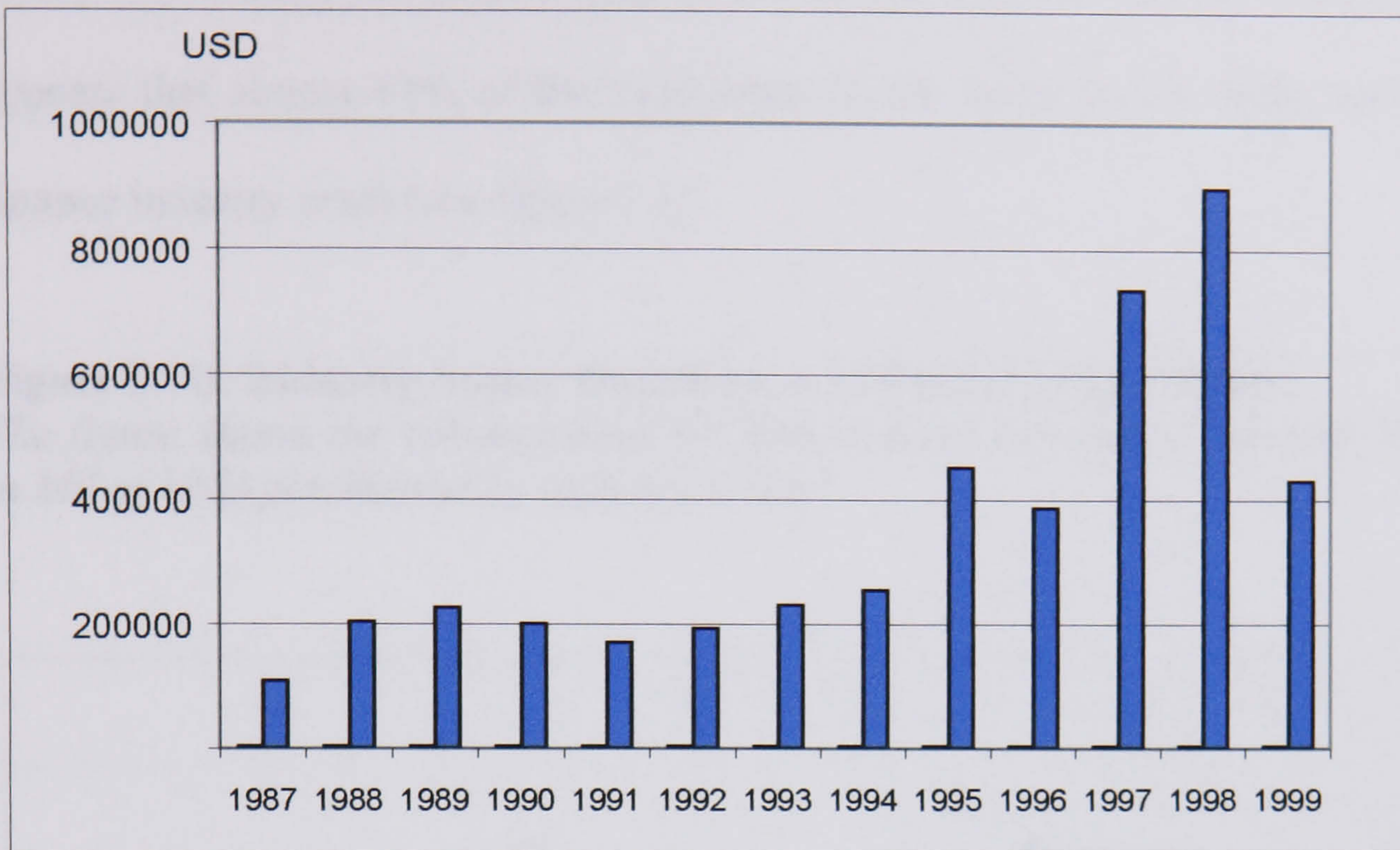
**Figure (1.1): Global M&As Statistics.**

*This figure shows the volume total for M&As deals completed between 1/1/1987 and 28/11/99 in all industries worldwide (USD Mil 10,737,799.2)*



**Figure (1.2): Financial M&As Statistics.**

The figure shows the volume total for M&As deals completed between 1/1/1987 and 28/11/99 in the financial services industry worldwide (USD Mil 4,481,385.1)

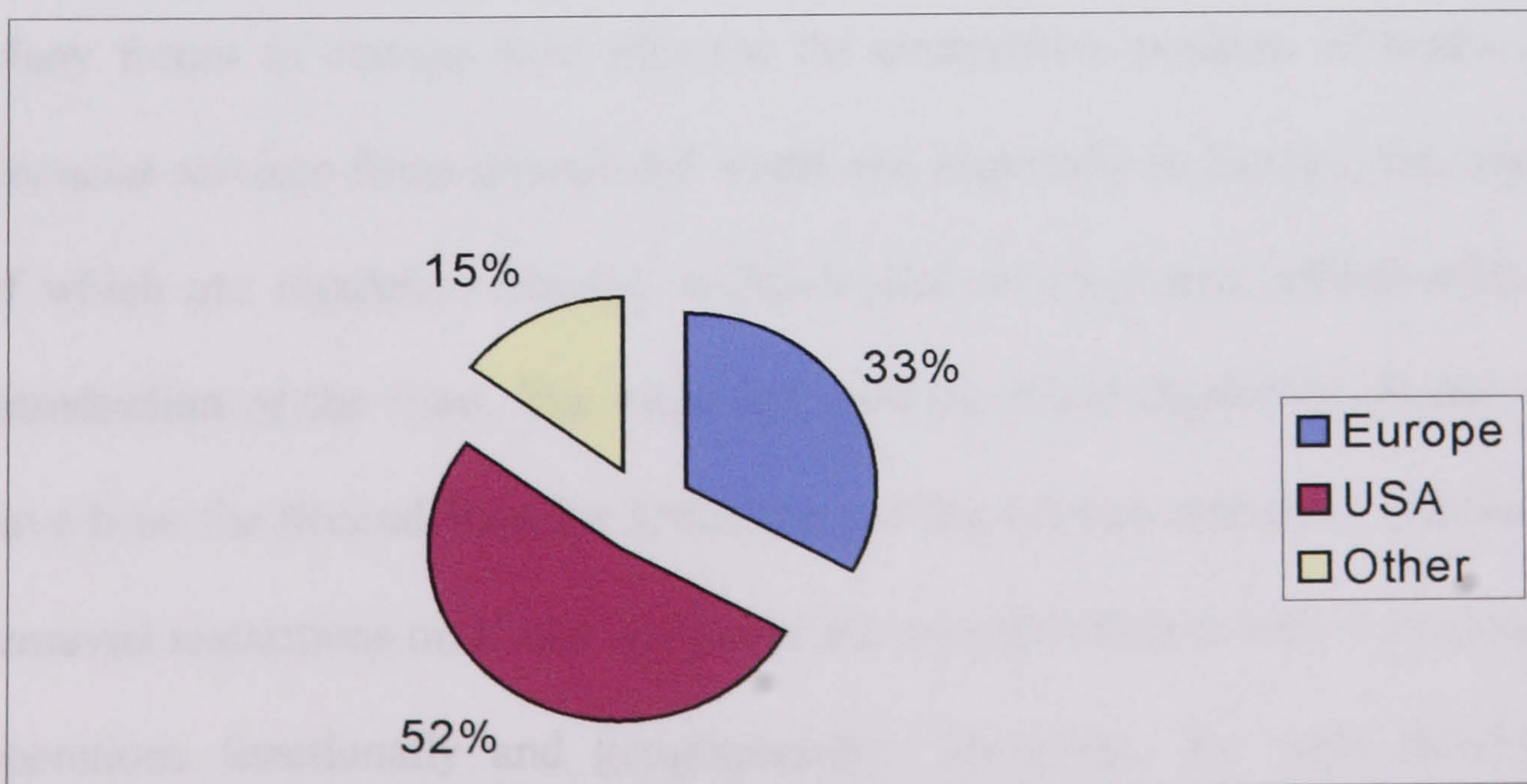


Source: Securities Data Company (Thomson Financial Securities Data)

However, looking at the geographic distribution in figure (1.3) we notice that 33% of those total deals took place in Europe.

**Figure (1.3): Geographic Distribution of Global M&As Deals.**

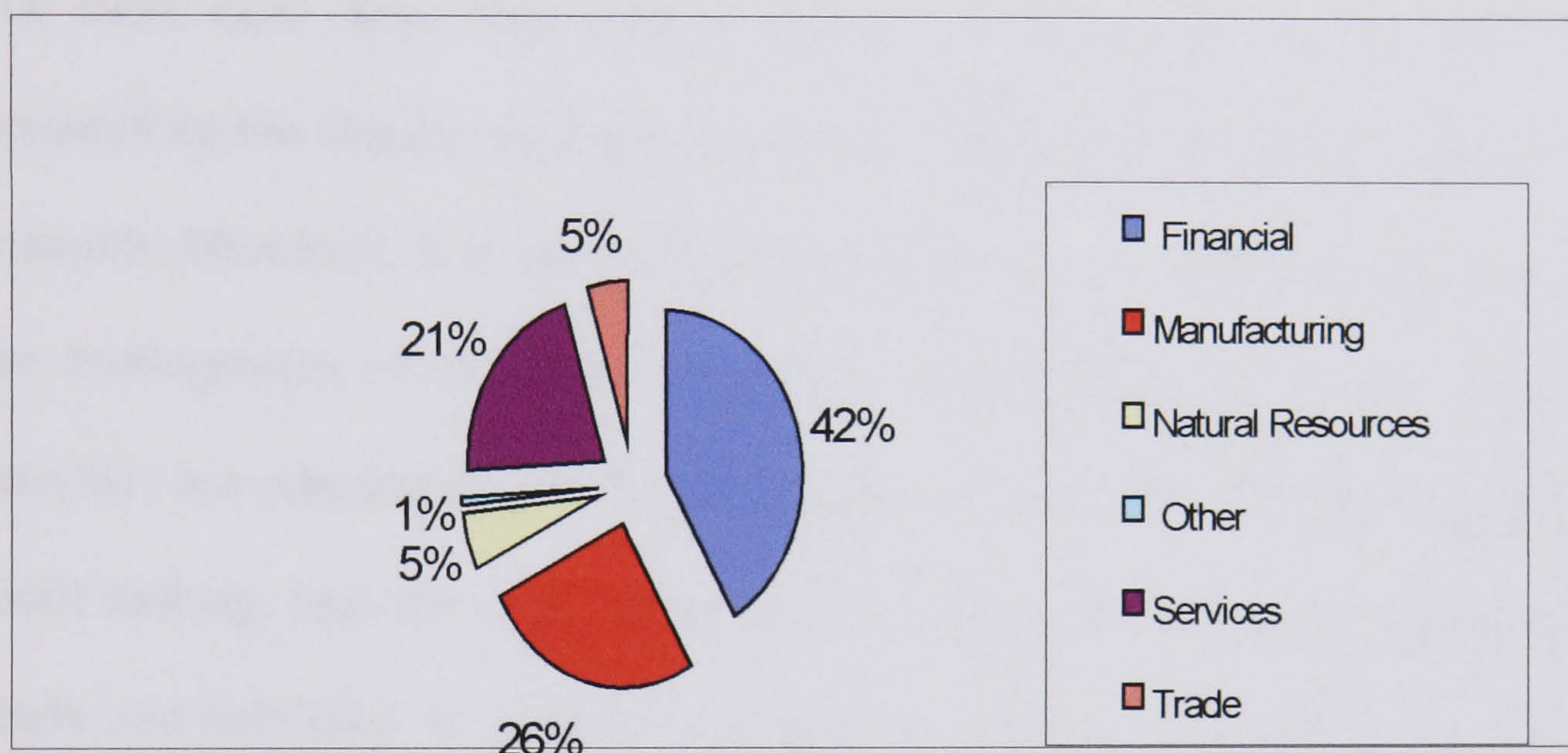
The figure shows the volumes total for M&As deals completed between (1987-1999) in Mil of USD partitioned by geographic area.



When we consider the partitioning of the M&As activity among industry sectors it appears that almost 42% of the total deals, in the same period under revision, were finance industry deals (see figure 1.4).

**Figure (1.4): Industry Sector Distribution of Global M&As Deals.**

*The figure shows the volumes total for M&As deals completed between (1987-1999) in Mil of USD partitioned by industry sector.*



*Source: Securities Data Company (Thomson Financial Securities Data)*

Many forces of change have affected the competitive position of banks and other financial services firms around the world and especially in Europe, the most notable of which are regulatory change, technological development, globalisation, and the introduction of the Euro. The main components of the regulatory change in Europe have been the Second Banking Directive and the Capital Adequacy Directive, which removed restrictions on banks and paved the way for them to widen the scope of their operations functionally and geographically. Moreover, the rapid development in technology not only changed the way the banks deliver, bundle and structure new

products to their end customers but also provided cost cutting potentials through economy of scale and less dependence on human intervention which is also subject to error. These forces of change increased the competition in the market and caused banks to decrease their margins, a process which is still ongoing. Furthermore, this is pushing managers to take strategic decisions such as mergers. Hence, the level of consolidation in the financial services industry has accelerated and reached unprecedented levels around the end of the twentieth century.

All these facts deem this class of merger of particular interest and encouraged researching the impact on bank performance change, which motivated us to do this research. Moreover, it is worth studying the merger in this large industry in view of the homogeneity of the merging parties, in the sense that their operations and activities are coherent in terms of the streams of their cash flows, their risk taking and profit making, and the relative precision of valuation of a high proportion of their assets and liabilities. In addition, the research done on this topic in the USA cannot necessarily be generalised to draw conclusions about the European scenario, for a variety of reasons, one of the most important being the differing regulations governing the activities of the financial services industry in USA and in Europe. The contradictory outcome of the research done on the M&A performance, revealed earlier, is one of the reasons that motivated this research.

The research done using event study methodology to measure the M&A performance in European Banking has been very sparse, being limited to one study by Cybo-Ottone and Murgia (2000). Our study aims to help filling this gap in the literature, by presenting new findings and by using a larger sample with more updated data which includes some of the most important and largest deals that happened near the end of



the twentieth century. Moreover, we intend in this study to cover an area which is not fairly explored in the banking merger literature in the USA and was not also investigated by Cybo-Ottone and Murgia (2000), that is the relationship between the method of payment and the gains from merger to each party.

Moreover, the studies that measured the operating performance associated with European Banking M&As are also minimal and reached contrasting conclusions compared to the USA studies. One study concentrated on the post-merger operating performance (Vander Venet, 1996) and another on the causes of European bank merger (Vander Venet, 1999a). Therefore our aim is to contribute to the literature by using a methodology developed by Healy, Palepu and Ruback (1992) for a sample of non-financial USA takeovers. We also correct for a methodological problem that the sample selection in Healy et al., (1992) was subject to, that is we chose deals where acquirers are not involved in any other deal two years before merger and three years after merger.

The following areas, which have not been fully explored in the existing literature on bank mergers, are addressed in this study.

- 1- In addition to examining the effect of the method of payment on the market valuation of M&As; we aim to make a link between the announcement period return and the post merger operating performance.
- 2- We search for the determinants of target bank market return.
- 3- We examine the motives for European bank mergers.

4- We search for the pre-merger determinants of post-merger cash flow return improvement.

## **1.4 Structure of the dissertation.**

In chapter two we review the literature on M&A and cover areas related to the forces of change that are accelerating consolidation in the financial services industry. We also review the theories of M&As and the research that examined the M&As performance.

In chapter three we examine the market valuation of European bank merger. We use in this study 102 deals from 17 European countries. The deal characteristics varied widely and included bank to bank vs. cross-product deals, merger vs. acquisitions deals, national vs. cross-border deals, and deals paid in various methods such as cash, equity, or a mix of cash, equity and loan notes.

In chapter four we search for the determinants of target shareholders return, while in chapter five we examine the motives for the European bank merger.

In chapter six we examine the post-merger operating performance, and we examine the relationship between the market return at merger announcement and the post-merger operating performance change. We also search for the pre-merger characteristics of the merging parties that improve the cash flow returns. We finally conclude in chapter seven.

Our conclusions point to small total gains and target shareholders gains around merger announcement. We also found that high target returns are driven by high target profitability, lower capitalisation, a conservative credit policy and a better efficiency status relative to the acquiring bank before merger. Although we documented that synergy was the major motive for bank mergers in Europe, we could not find an evidence of improved post-merger operating cash flow returns, while the cost efficiency ratios improved only marginally. We also documented that the positive market valuations at merger announcement were positive expectations that were not realised after merger.

# **CHAPTER TWO: THEORIES, FACTORS ACCELERATING M&As, AND THE IMPACT ON THE PARTICIPATING FIRMS.**

## **2.1 Introduction.**

In chapter one we showed clearly the importance of examining the valuation of M&As in the European banking industry. However our aim is to study the market valuation, the determinants, the motives and the operating performance change associated with bank mergers in Europe. Therefore, in this chapter we review the literature related to the topic of this dissertation and we start by discussing the factors that accelerated the consolidation in the banking industry. In section three we talk about the theories of M&As in general, then in section four we review the literature that examined the M&As performance. However, in the subsequent chapters we also review the studies that are closely related to those chapters.

Jensen and Ruback, (1983) view the market for corporate control, often referred to as the take-over market, as a market in which alternative managerial teams compete for the rights to manage corporate resources, and therefore the take-over market is an important component of the managerial labour market.

In the USA definition, take-overs, mainly, take the form of a merger or a tender offer and sometimes elements of both are involved. The words merger and tender offer are frequently used but the distinctions are not precise. In general, mergers are negotiated directly with target managers and approved by the target's board of directors before

going to a vote of target shareholders for approval. Tender offers are offers to buy shares made directly to target shareholders to sell their shares to the bidding firm. However in practice, one firm in a merger may be stronger and may dominate the transaction. Similarly, tender offers can be friendly or hostile. Generally speaking, mergers are mostly “friendly”. Some tender offers are “hostile” in the sense that an offer is made to the shareholders without the approval of the board of directors.

However, in the UK definition the use of the two terms, merger and acquisitions is more frequent than merger and tender offers while the distinction between both is quite clear. Merger is used to refer to the consolidation of two equal partners while acquisitions is closer to the USA definition of tender offer where a transfer of control is clear and the dominance of one party is obvious.

Fama and Jensen (1983a,b) define corporate control as the rights to hire, fire and set the compensation of top-level managers. Hence when a firm acquires another, the control rights to the target firm changes hand to the board of directors of the acquiring firm. While corporate boards always retain the top-level control rights, they normally delegate the rights to manage corporate resources to internal managers. In this way the top management of the acquiring firm acquires the rights to manage the resources of the target firm.

Jensen and Ruback (1983) argue also that the term corporate control is frequently used to describe many phenomena ranging from the general forces that influence the use of corporate resources (such as legal and regulatory systems and competition in

product and input markets) to the control of a majority of seats on a corporation's board of directors.

On the other hand the market for bank control has been influenced by general forces of change that accelerated the consolidation recently. We discuss these in the next section.

## **2.2 Factors accelerating consolidation in the Financial Services Industry.**

Many forces of change have affected the competitive environment in the banking industry, those included: deregulation, the Euro, information technology, and international integration (see White, 1998; Dermine, 1999; and Berger et al., 1999).

We will deal with these in turn.

### **2.2.1 The regulatory environment (deregulation).**

The government and regulatory bodies play a vital role in M&A decisions and pace in the banking industry, e.g. limits on interstate or international M&A, or M&As between banks and other firms. In the USA there were restrictions on geographic expansion of banks from the 1930s, (Glass-Steagall Act) until the 1980s and early 1990s when these restrictions were gradually relaxed culminating in the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994, which permits interstate

branching in almost all states<sup>1</sup>. M&As activity increased in states after they joined interstate banking agreements (Jayaratne and Strahan, 1998).

The Banking Act of 1933 (the Glass-Steagall Act) and the Bank Holding Company Act of 1956 put restrictions on investment banking and other powers of commercial banking institutions. Relaxation of these restrictions began in 1987, when the Federal Reserve expanded BHC's abilities to underwrite corporate debt and equity. However, the revenue from these underwriting could not exceed 5% of the subsidiary's total revenue, and then more relaxation were put in place in 1996 so the revenue was allowed to be 25% of the total revenue (Berger et al., 1999). This deregulation encouraged cross-product M&As, i.e. M&As between commercial banks and other financial services firms, such as: investment banks and securities firms (Saunders, 1999).

The reason for such earlier restrictions could be to protect the national economy from any sudden downturn and shock as a result of the collapse of one major bank. These restrictions have until the 1990's prevented the USA banks from leading the league of the largest banks in the world. For instance, the largest American bank in 1990 in terms of market capitalisation was JP Morgan and was ranked tenth on the league while Japanese banks were taking the lead<sup>2</sup>. In 1998 the picture changed considerably and BankAmericica and Citigroup sat on top of the ranking table. But these rules lead to direct efficiency losses, due to the lack of competition and diversification (this probably explains the existence of huge inefficiencies in the USA banking industry in the 1980's that we show later in section four). Therefore the relaxation of these

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<sup>1</sup> Berger et al., (1995) provides year-by-year details on the changes in state laws.

restrictions came to respond to the need to improve the efficiency of the banking sector through increasing the competition among the market players. The outcome was a continuous increase in the consolidation, within and across the state lines that peaked in 1998.

On the other hand Europe also witnessed a change in regulation which aimed to harmonise the bank regulations among EU states. Similar to the observation concerning the USA, White (1998) observes that the excessive regulation in the financial sector has been recognised as a problem for over 30 years, but the last ten years witnessed several attempts to deal with it<sup>3</sup>. The Second Banking Co-ordination Directive was passed by the European Community Council of Ministers in December 1990, and came into effect in January 1993. The European Second Banking Co-ordination Directive has allowed banks to operate fairly freely across national boundaries in Europe since 1993 based on a single “passport” (allowing financial activity anywhere in the Community), mutual recognition and home-country control (for purposes of supervision), the objective was to ensure the fullest possible degree of cross-border competition subject to adequate supervisory oversight. The harmonisation of the bank regulation among the member states of the European Union is seen as one of the many steps taken to achieve full integration in the EU, which triggered the consolidation wave among the financial institutions fearing the coming intense competition.

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<sup>2</sup> The Japanese banks were in order: IBI, Fuji bank, Sumitomo, Dai-Ichi, Tokyo-Mitsubishi, and Sanwa as in Danthine et al., (1999).

<sup>3</sup> Llewellyn (1996), page 158, notes that the universal trend is that public policy priorities have shifted towards enhancing banking efficiencies through competition and in the process public policy has become less protective of the banking industry.



The change in regulation cannot be considered the only cause of the acceleration in consolidation, other factors have also played a role or they are expected to contribute in increasing consolidation.

### **2.2.2 The introduction of the Euro.**

The introduction of the Euro should also foster M&A as Berger et al, (1999) argue. The implementation of monetary union may increase cross-border consolidation by increasing trade, by reducing the currency conversion costs of institutions operating in multiple nations, and by reducing costs to customers of purchasing services from foreign-owned institutions.

The Euro will impact the banking industry in several ways, particularly through the government bond market, the corporate bond market, the fund management market, and the foreign exchange market (Dermine, 1999). With the Euro and the Second Banking Co-ordination Directive the competitive advantage of local banks in the local government bond market and the corporate bond and equity markets, regarding the underwriting and trading business, has started to diminish gradually. The reasons being, as Dermine (1999) argues, with the monetary union the sources of the competitive advantage for the local banks no longer exist, which are: the privileged access to the public debt issuer, the public currency denomination, the expertise in the domestic monetary environment and policy. For similar reasons, fund management and the foreign exchange markets will no longer be the areas of expertise of the local financial institutions.

This in general will create room for foreign banks to be more active in these markets and hence intensifies competition. Therefore, domestic or cross-border mergers might become relevant strategies for banks to consolidate their market position and face the intense competition (Dermine, 1999).

### **2.2.3 The Technological change.**

One of the most fundamental forces of change in the financial services industry has been the development in technology, most notably in computing and telecommunications. White (1998) states that the developments in technology affects banking in three main ways. First, they contribute in reducing the costs associated with the management of information (collection, storage, processing and transmission), second they provide more advanced distribution channels through remote banking, and third they have led to the development of new financial products.

Remote banking is now offered by all of the banks in the European Union. The most popular means are the Automated Teller Machines (ATMs) and the telephone banking which are becoming increasingly sophisticated. However the provision of banking services through the Internet via what is known as PC banking or Online Banking is also increasing rapidly. The lower-priced computers, and the continuous advances in technology<sup>4</sup>, in addition to the familiarity and increased confidence in the security of the technology will accelerate the dependence on remote banking (White, 1998).

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<sup>4</sup> Cheap access to the Web via television sets and interactive TV technology will all work in the direction of increasing access to the Internet. See Stewart (1997).

Consequently, as an implication we believe the viability of the branching system is questionable as is the concept of “one-stop shopping”<sup>5</sup>. This also constitutes a direct attack on the concept of “relationship banking”<sup>6</sup> and in turn will probably lead to more branch closure and cost cutting policies aimed to improve efficiency. Moreover, these technological developments may provide ample opportunity for decreasing costs and achieving economies of scale (Radecki et al., 1997; Danthine et al., 1999). For instance Bauer and Hancock (1995) find that the cost of processing an electronic deposit for an average US bank decreased by 85% between 1979 and 1994. In addition Berger et al., (1999) provide a similar argument that the new tools of financial engineering, such as derivative contracts, off-balance-sheet guarantees, and risk management may be more efficiently produced by larger institutions.

Maybe these facts enable large banks to grasp the benefits while small banks become potential targets to be swallowed by a “bigger fish” in the market. This could be due to the fact that small banks do not have the financial ability to invest heavily in technology and therefore, they may not be able to fully benefit from the potential cost savings.

The general outcome is increase in competition and a race among banks towards achieving higher efficiency gains by consolidation with others, which enable them to gain competitive advantage over other market players.

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<sup>5</sup> See Freedman and Goodlet (1998).

<sup>6</sup> For example, HSBC Group and Citibank have electronic banking services designed to allow customers to perform money transfer, open letters of credits, and process inter-bank accounts transfers without the need of any direct contact with the bank staff.

#### **2.2.4 The consolidation of international markets.**

The globalisation of markets has made the world the so-called “Big Village” with the transfer of goods, securities and services in the world creating more demand for financial services and intermediary institutions to be involved in the process. But the globalisation can be seen as a by-product of the other forces of change mainly technology and deregulation. The cheaper ways of communications make a global reach more practical, in addition deregulation makes new markets wide open to competitors. Nowadays, for example the foreign exchange business, the derivatives business, and even the fund management business are globalised. This has increased competition in the local markets from outsiders; for example the main competitors for European banks in the area of investment banking are the American banks (see Morgan Stanley Dean Witter, 1998). In addition, the growing competition is also coming from global banks in the retail services, and other non-local banks are emerging as potential competitors for local banks (White, 1998).

Hence Berger et al., (1999) argues that the globalisation of markets has likely contributed to cross border M&As and the globalisation of financial services firms while Kwast (1996a) and Meyer (1998) see it the other way around. The argument and finding above is supportive of the opinion that the European integration and the implementation of the single currency will foster M&As in the European banking markets. In fact we showed earlier in figures (1.1) to (1.4) comprehensive statistics of the acceleration of M&As activity around the world and the share of Europe and the financial services industry.

### **2.2.5 The aggregate impact and effects.**

We have dealt with the various forces of change in the financial services and showed how every one of them can separately affect the competitive environment. However, these forces are, in fact, inherently interrelated. The development in technology provided new ways of delivering and bundling products to the end customers regardless of the geographic locations and borders. This in turn has encouraged regulators to deal with a new reality of no borders affecting the transfer of services and capital. But in turn deregulation and the relaxation of previous constraints on the operations of financial institutions in the USA aimed to improve efficiency through increasing competition as we showed earlier. A similar pattern was observed in Europe, where the deregulation was part of the process of harmonising the economies of the member states, which in turn should increase competition. However the increased competition in the financial services industry leads to more reliance on technology to gain a competitive advantage. White (1998) also argues that as competitive pressures mount, banks may find that their credit ratings fall below those of their customers, providing a further boost to securitisation and causing further loss of profits for many traditional intermediaries. This in turn may lead to more pressure for a level playing-field, more investment in technology, and so on.

Therefore, summarising the effects of the forces of change, the bottom line would be, in White (1998)'s words, *“bank profits in continental Europe are already under pressure and there are some grounds for believing that these pressures could intensify sharply and quickly”*.

## 2.3 Theories of Mergers and Take-overs.

Many individual theories or explanations for mergers and take-overs have been formulated. We present below a full overview of those theories, the categorisation being that adopted by Weston, Chung, and Siu (1998), page 75.

### *Theories of M&As*

#### I. Total value increased

1. Efficiency increases
2. Operating synergy
3. Diversification
4. Financial synergy
5. Strategic realignments
6. The q-ratio
7. Information
8. Signalling

#### II. Hubris- acquirer overpays for target

#### III. Agency-managers make value-decreasing mergers to increase size of firm

#### IV. Redistribution

1. Taxes-redistribution from government
2. Market power-redistribution from consumers
3. Redistribution from bondholders
4. Labour-wage adjustments
5. Pension reversions.

To look at the take-over motives in another more general context, those motives can be rearranged into Value Maximisation motives and Non-value maximisation motives<sup>7</sup>.

### **2.3.1 Value-Maximisation motives:**

Value can be maximised in one of two main ways through merger, by increasing market power in setting prices, or by increasing efficiency and achieving synergy gains.

#### **2.3.1.1 Market Power**

Merger among institutions that have significant local market overlap ex ante may increase local market concentration and allow merged firms to raise profits by setting prices less favourable to customers and by selling off properties due to branches closure in the same locality. Merger and acquisitions of the market extension type that join institutions in different parts of a nation or in different nations are less likely to increase local market power. There is enormous research, in the financial services industry, suggesting that in-market M&A's that substantially increase market concentration may increase market power in setting prices on retail banking services (Berger and Hannan, 1989, 1997; Hannan, 1991; Hannan and Berger, 1991; Neumarck and Sharpe, 1992; Hannan, 1994; Jackson, 1997). Presumably, this was an

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<sup>7</sup> Berger, A.N., Demsetz, R.S., Strahan, P.E., 1999. The consolidation of the financial services industry: Causes, consequences, and implications for the future. *Journal of Banking and Finance* 23, 135-194.

expected consequence of many of the M&A's and provided at least part of the motivation.

### **2.3.1.2 Efficiency increases.**

There are two aspects to efficiency in the merger context according to Copeland and Weston (1988). These are 'differential efficiency' and 'inefficient management'. The theory of differential efficiency states that, if the management of firm A is less efficient than management of firm B then value can be increased by improving the efficiency of firm A when it merges with firm B. On the other hand the 'Inefficient management' theory implies that other management teams could control the resources of the firm more efficiently than the current management team. Copeland and Weston point out that the 'differential efficiency' theory is most likely a motive for horizontal mergers, while the 'inefficient management' theory could be a reason for unrelated mergers.

The inefficiency theories imply therefore that the acquiring company's management thinks that it can manage the assets of the target more efficiently than the present management, and some research on US bank merger does indeed suggest that M&A may increase efficiency. Berger and Humphrey (1992), Pilloff and Santomero (1998) found that acquiring banks tend to be more cost efficient than the target banks on average. Another study of US banks found that acquiring banks are more profitable and have smaller non performing loan ratios than targets (Peristiani, 1993). Other studies also suggest that large X-Efficiency gains are possible if the best practice banks merge with the least efficient banks and reform the practices of the least efficient banks (Savage, 1991; Shaffer, 1993).



European studies present similar findings, Focarelli et al, (1998) find that large, profitable banks tend to be acquirers, while small non-profitable banks tend to be targets. In the same line of argument Vander Venet (1999a) find that large, efficient banks tend to acquire small, less efficient banks. Consistent with these findings, are results reported by Altunbas et al., (1995) for UK banks and building societies.

### **2.3.1.3 Synergy.**

On the other hand, the operating synergy theory assumes that the economies of scale do exist in the industry and that individual firms, prior to merger, are operating at levels of activity which are below the levels required for achieving potential economies of scale. Economies of scale arise because of indivisibility, such as human resources, plant and machinery, and overheads may provide increasing returns if spread over a large number of units of output. Thus operating synergy requires much overlap in the activities, products and markets of both parties. If synergies are present then the equity value of the merged firm AB is higher than the equity value of the stand-alone firms A and B i.e.  $V_{AB} > V_A + V_B$  the value increase is consequently a net shareholder gain<sup>8</sup>. Another source of synergy can be achieved by economy of scope where the combined entity can offer a wider range of products to a larger customer base, by combining their resources which might not have been possible if both entities' resources were not merged together.

Operating synergies may also be achieved in vertical integration. Where firms are operating at different stages of production, the operating synergy may be more

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<sup>8</sup> The sharing of gain between the different shareholder groups is a question of negotiations.

attained by co-ordination of the different levels. The argument suggests that costs of communication and various forms of bargaining can be avoided by vertical integration (Arrow, 1975; Klein, Crawford, and Alchian, 1978; Williamson, 1975).

If, on the other hand, merging firms are from unrelated industries (conglomerate merger) value creation might be sought from other sources of synergy such as managerial or financial synergy.

Financial synergy may be achieved in different ways. Firstly, there is the tax advantage of unused debt capacity. The debt capacity of the merged firm can be greater than the sum of the two firms' capacities before their merger, in the sense that one of the merging firms has unused debt capacity while the other operates near its optimal gearing level. The tax advantage of debt means that the merging firm will gain from exhausting the unused debt capacity, which implies that the larger the difference in debt levels between the merging companies, the greater the value creation from their merger.

Secondly, the complementary nature of the investment opportunities and financial resources of the merging companies, which results in lower cost of internal funds. This internal funds effect is supported by empirical findings, for example Nielsen and Melicher (1973) found evidence of redeployment of capital from the acquiring to the acquired firm's industry. Similar evidence was reported by Myers and Majluf (1984) where in their model, slack-rich bidders (i.e. those with low gearing levels) buy slack-poor targets. Slackness is relative to the availability of positive net present value investment opportunities. Therefore there is a mismatch between resources and investment opportunities within each merging firm and this mismatch is corrected by

merger. The Myers and Majluf model predicts that bidders will be less geared than targets and the larger the gearing difference the greater will be the wealth gains to shareholders<sup>9</sup>. On the other hand Palepu (1986) argues that mismatch between growth and resources in a firm will make it more likely acquisition candidate and finds evidence in support.

Another source of financial synergy is the coinsurance of debt, which results when the creditors of the merging firms receive better protection for their debt from the combined entity than from the individual merging partners before the merger. This better protection is derived from the combination of two firms lacking perfect positive correlation of cash flows which can decrease the default risk of the combined entity and, therefore increase its debt capacity due to the coinsurance effect. Moreover after the merger the creditors of each firm also have the asset backing of the other firm thus strengthening the security for their debt. However, unless capital restructuring occurs, this should result in more benefits accruing to the merging firms' creditors at the shareholders' expense (Lewellen, 1971; Galai and Masulis, 1973; Higgins and Schall, 1975; and Kim and McConnell, 1977). On the other hand another possible dimension is economies of scale in flotation and transaction costs of securities (Levy and Sarnat, 1970)

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<sup>9</sup> Bruner (1988) finds empirical support for the Myers and Majluf hypothesis and reports that acquirers have significantly greater financial slack and targets display significantly higher leverage in the two years prior to the merger. He also finds successful bidders have more slack than unsuccessful bidders. Similarly, successful targets have less slack than unsuccessful ones. Slusky and Caves (1991) report that the difference in leverage between bidder and target has a positive impact on bid premium but not on the returns to bidder shareholders. This draws on Sudarsanam, Holl and Salami (1996), page 693.

## **2.3.2 Non-value maximisation motives.**

### **2.3.2.1 Agency problem.**

Jensen and Meckling (1976) formulated the implications of agency problems, which arise due to the separation of ownership and control with managers having a different incentive structure than shareholders. Take-overs decisions may, then, be driven by managerial utility maximisation motives rather than shareholder value maximisation<sup>10</sup>.

Jensen and Meckling (1976) argue that the agency problem arises because contracts between managers and owners cannot be costlessly written and enforced. The costs of enforcing such contracts are known as the agency costs and involve monitoring costs, bonding costs and a residual loss (for shareholders) which can be present even if monitoring and bonding costs are at the shareholders optimal levels.

However, there are arguments that the agency problems can be controlled by some organisational and market mechanisms. Compensation can be tied to performance by means of bonuses and executive stock options, moreover the labour market also plays its role in setting the managers' wage levels based on their own reputation (Fama, 1980), consistent with setting suitable organisational and corporate governance structures to monitor the agency problems. For example Berger et al., (1999) notice that banks that have addressed managerial agency problems through high levels of managerial shareholdings and/or concentrated ownership experience higher (or less negative) abnormal returns when they become acquirers than banks that have not

addressed these conflicts. Moreover, Hadlock et al., (1999) find that banks with higher levels of management ownership are less likely to be acquired. This effect appears to be driven by acquisitions where target managers depart from the banking organisation following the acquisition. Additionally they do not find that poorly performing banks are particularly likely to be acquired. Hadlock et al, (1999) argue that this evidence is most consistent with an entrenchment hypothesis, where management teams with significant ownership positions block value increasing acquisition attempts. Although this is counted as a cost of having an entrenched management, yet they observe that a potential benefit of this is that a bank's managers may be willing to accumulate more firm specific human capital in the bank since they assess that there is a low probability of a control change. Moreover, Morck et al., (1988) reported evidence of the entrenchment hypothesis at 5 to 25% of management ownership and that at an ownership level of more than 25% the company performance starts to improve slowly. Therefore it appears that controlling for the agency problem can be attained through increasing management ownership but maybe at a very significant level (above 25%) at which having an entrenched management may also be avoided.

On the other hand Fama and Jensen (1983a) hypothesised that control functions are delegated to a board of directors by the shareholders, who retain approval rights on important matters including board membership, mergers and new stock issues. Moreover, the stock market provides an external monitoring tool, since share prices reflect the decisions taken by the managers, and therefore low share prices puts pressure on managers to change their behaviour and to stay in line with the interests of

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<sup>10</sup> Morck et al., 1990; Holl and Pickering, 1988; and Taffler and Holl, 1991 provide arguments and evidence on the impact of managerial objectives on acquisitions.

shareholders (Fama and Jensen, 1983a). When these mechanisms fail to provide a control tool for the agency problems, the market for take-overs plays its role as an external control device of last resort (Manne, 1965).

### **2.3.2.2 The Free Cash Flow Hypothesis.**

Jensen, (1986 and 1988) maintains that the major cause of take-over activity is the agency costs associated with conflicts between managers and shareholders over the payout of free cash flow. According to Jensen the free cash flow is the cash flow in excess of the amounts required to finance all net present value projects available for the firm. Therefore, in order to maximise share value such free cash flow must be paid out to shareholders, which also serves as a control mechanism by having the managers subject to monitoring by the markets in case they seek to finance any additional projects with new capital.

In order to tighten the control, Jensen also considers that an effective way is to issue debt in exchange for shares, without retention of the proceeds of the issue, which means that managers would be liable to serve the debt, and payout any free cash flow more enforced than in any announced dividend policy situation. As a support of this theory, Berger et al., (1999) report that one of the main reasons for the acceleration of consolidation in the financial services industry in the USA, is the improvement in the financial situation of firms as a result of record breaking profits in the mid 1990s, low interest rates and high stock prices, which reduced financing constraints on M&A, making excess cash flow available for managers.

On the other hand, another bank-specific incentive for growth is based on the too-big-to-fail argument. This implication is that banks have an incentive to grow in order to join the club of the too-big-to-fail banks. However this motivation for increased size does not classify with an agency problem type of explanation, since having too-big-to-fail status may be beneficial for the shareholders too (O'Hara and Shaw, 1990).

### **2.3.2.3 Winner's curse and Hubris.**

The winner's curse concept states that when there are many bidders in an auction bidding for the same object, this may result in a very wide range of bids, especially when the true or the fair value of the object is unknown. The winning bidder in this case will be "cursed" in the sense that he will end up paying the highest bid price, which is highly likely to be above the fair value of the object. Roll (1986) analysed the effect in the take-over context, assuming that markets are efficient of the strong form, the market value of the target already reflected the full value of the firm. The fact that bidders overvalue the target at higher than the prevailing market price resulted from hubris, i.e. the bidders excessive self-confidence, pride, and arrogance. Therefore, as Roll states hubris is one of the factors that caused the winner's curse phenomenon to occur, and to wipe out any potential synergistic gain that might have resulted from merger. And even without competition, Roll (1986) hypothesised that managers committed errors of overoptimism in evaluating merger opportunities due to hubris. Morck et al. (1990) formulate a version of hubris which predicts that the worst acquisitions are made by well-performing firms since their managers are the most likely to be infected by hubris.

#### **2.3.2.4 Relationship among the takeover theories.**

We explored the various takeover theories one after another, however, this does not mean that they are not related to one another. Moreover, in many cases more than one theory or motive might explain the M&As activity in one sample or even in one transaction. Maximising shareholders value, as we showed earlier, can be attained through many ways: market power, increasing efficiency or through achieving synergy gains. In fact market power can be seen as another form of increasing profit efficiency in the sense that the same quantity of input (labour or capital) is generating a higher quantity of output (revenue). Hence it becomes very difficult to decide whether it is attaining market power or increasing efficiency is the explanation of the takeover decision. Moreover, synergy gains can also result in a way of improving the efficiency of the merging firms. Scale efficiency, and scope efficiency are the two sources for efficiency increases and thence when the merging firms cut the unit cost by implementing scale economies or when they distribute the total fixed cost on a wider range of products then synergistic gains are realised. Therefore it might be really difficult to disentangle one motive from the other when a takeover transaction takes place.

On the other hand when no net shareholders gain is realised, we may assume that agency could be one of the explanations in addition to hubris. But it is also possible that both explanations are valid for the same set of takeover deals or even one deal.

In sum this poses one important question, that is, is there a way to distinguish among these various motives? In other words are these motives related to one another, and how? Berkovitch and Narayanan (1993) summarised the various theories and motives



of M&A into three main categories and concluded that total gains are positive for synergy, zero for hubris, and negative for agency problems and so on. In their study they maintained that, in analysing a sample of takeovers, synergy is the theory that explains the takeover decision when the relation between target gain and total gain, and between acquirer gain and target gain are both positive. Whereas, when there is no relation between target and total gain in the sample, and when the relation between acquirer and target gain is negative then hubris is the best explanation or the motive for takeover. Finally, agency is the explanation when the relation between target and total gains in the sample, and the relation between acquirer and target gains are both negative.

We provide a more detailed explanation of this argument and the hypothesis postulated later in chapter five.

## **2.4 M&As impact on the participating firms.**

After going through the take-over theories, in general, and the factors accelerating the M&As in the financial services industry in the last 15 years, it is the appropriate time to examine the most important issue around which the debate starts whenever a merger transaction is announced, that is, the merger outcome or the benefit from mergers.

The literature on the effect of M&A on the performance of the parties involved included two main streams of studies, the market return (event study methodology) and the operating performance. In addition to these two areas, the literature around the

M&A in the banking industry also included measuring the X-efficiency effect of M&A on the firms involved, examining the effect of M&A on small business lending, and examining the market concentration and market power as a result of M&A.

In the rest of this chapter we will try to review the literature and summarise the findings of these studies. Moreover, there is a considerable body of the literature we review at the beginning of every consequent chapter since we believe some of the studies are closely relevant to the research we performed in each chapter.

## **2.4.1 Market Return Studies.**

### **2.4.1.1 Summary of general findings.**

Research in the field of M&A has been considerable. Studies that examined the effects of M&As on share prices of acquiring and acquired institutions around the merger announcement and throughout various time periods have followed the same standard procedure. This procedure is known as event study methodology, which measures the economic effect of the merger by estimating the unexpected share price changes around the announcement date of a specific event<sup>11</sup>.

The outcome from market return studies has, in general, reached a consistent conclusion that the target shareholders gain- see for example, Mandelker (1974), Langetieg (1978), Asquith and Kim (1982), Asquith (1983), Firth (1980), Siems

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<sup>11</sup> The unexpected stock returns are abnormal returns and measured as the difference between the actual and expected stock return. Fama, Fisher, Jensen and Roll (1969) first used the event study methodology in their study of the price effects of stock splits. Brown and Warner (1980, 1985) provide a detailed discussion of the techniques and various methodological issues regarding their use and interpretation, in our turn we provide a more detailed explanation of the event study methodology later in chapter 3.

(1996), Houston and Ryngart (1994), Sudarsanam et al (1996), Hawawini and Swary (1990). On the other hand there has also been some rare evidence of zero abnormal return to the target shareholders in USA bank mergers reported by De and Duplcan (1987) for the announcement week period and by Trifts and Scanlon (1987) for the (-20,0) weeks event window.

The wealth position of the bidding shareholders however, is not so clear. The findings of some of the research done on UK data point to, at best, minimal gain to the bidder shareholders (Dodd and Ruback (1977), Franks and Harris (1989), Franks, Broyles, and Hecht (1977) and recently Cybo-Ottone and Murgia (2000) for a European banking sample). Other research findings present evidence of negative gains to the shareholders of the bidder firm and a negative aggregated total gain such as: Hannan and Wolken (1989)<sup>12</sup>, Houston and Ryngart (1994), Sudarsanam et al., (1996). Moreover Barnes (1984), and Dodds and Quek (1985) also show negative announcement period for acquirers, as do Walter (1980) and Casy, Dodd and Doolan (1987) using Australian data, and Firth (1979, 1980) using UK data.

This latter result, of negative total gain, seems consistent with the outcome of the majority of the operating performance studies no matter what measures of performance the authors have used, see for example Meeks (1977), Spindt and Tarhan (1992), Linder and Crane (1992), Srinivasan and Wall (1992) and Rhoades (1993).

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<sup>12</sup> The findings of non-bank M&A event studies were reviewed in many articles, these included Jensen and Ruback (1983), Cook (1987), Jarrell, Brickley, and Netter (1988). The general conclusion is that target shareholders gain, while acquirer shareholders gain according to some studies such as: Dodd and Ruback (1977), Franks, Broyles and Hecht (1977), Kummer and Hoffmeister (1978), Bradley (1980), Jarrell and Bradley (1980), Bradley, Desai, and Kim (1982), Asquith, Bruner and Mullins (1983), Franks and Harris (1989). Other studies did not find significant gain or loss for the acquirer shareholders and those included Eckbo (1983), Asquith (1983), and Dennis and McConnell (1986), while another group of studies reported negative gain for acquirer shareholders and included Dodd (1980), Bradley, Desai, and Kim (1983), Limmack (1991), and Sudarsanam, Holl, and Salami (1996).

Many studies in the US have examined the long-term effect of merger announcement on the share price of the acquiring firm. The early evidence presented by Mandelker (1974) reported positive abnormal gain for the 12-month period subsequent to the merger month. However other studies found that the gain for the same period was insignificantly different from zero (Asquith and Kim, 1982).

On the other hand, Dodd and Ruback (1977), Langetieg (1978), Asquith (1983), Malatesta (1983), and Lahey and Conn (1990) reported significantly negative abnormal return for acquirers. Similar findings were also reported by early studies for UK mergers, those included Firth (1979, 1980) and Limmack (1991). One explanation for the negative post-outcome abnormal returns is that the studies impose ex post selection bias by using information that is not available at the announcement date to select samples. Alternatively, the negative drift could be caused by non-stationary parameters or other forms of model misspecification (Jensen and Ruback, 1983).

This latter observation by Jensen and Ruback (1983) was supported later on by Franks, Harris and Titman (1991). Franks et al., (1991) investigated the post-merger share price performance following US corporate takeovers. Using an equally weighted index, their findings confirm earlier studies that found negative post-merger performance. However, this result was not robust to the choice of the benchmark. The value weighted benchmark yielded positive post-merger performance, meanwhile the results generated with multiple factor benchmarks, and in particular the eight-portfolio benchmark exhibit no statistically significant abnormal performance for the overall

sample of bidders, and for the various sub-samples examined as well (all cash, all equity, contested, uncontested, opposed...).

Therefore, Franks et al., (1991)'s final results indicate, as they conclude, that prior findings of negative post-merger share price performance for bidders are more likely to be due to benchmark errors than to mispricing at the time of the announcement.

The findings of Franks et al., (1991) were contrasted later on by Agrawal, Jaffe and Mandelker (1992) who analysed the post-merger performance of acquiring firm using a sample of 937 mergers and 227 tender offers which represented the entire population of NYSE firms over the period 1955 to 1987<sup>13</sup>. They found that stockholders of the acquiring firm suffer a statistically significant wealth loss of about 10% over the five years following the merger completion and concluded that the efficient-market anomaly of negative post-merger performance highlighted in Jensen and Ruback (1983) is not resolved.

Moreover, Gregory (1997)<sup>14</sup> applies six benchmark control models to a sample of companies, which undertook successful UK acquisitions in the period 1984-1992, a total of 420 companies. The general conclusion supported the findings of Agrawal et al., (1992) and reported that the two year post take-over performance was significantly negative.

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<sup>13</sup> Agrawal et al., (1992) measured the post acquisition performance after adjusting for the firm size effect as well as Beta risk, using the methodology of both Dimson and March (1986) and Lakonishok and Vermaelen (1990) and that of Ibbotson (1975) RATS model with an adjustment of firms size.

<sup>14</sup> Gregory (1997) intended to measure the effect of the choice of the benchmark on the long-run abnormal return. His work was motivated mainly by the growing importance of this issue in the

The method of computing the post-merger abnormal returns has been, so far, the same across these studies, that is, the Cumulative Abnormal Return (CAR). However, Barber and Lyon (1997) document that CARs are biased predictors of Buy-And-Hold returns, and that matching sample firms to control firms of similar size and book-to-market ratios yield well specified test statistics. Loughran and Vijh (1997) adopted this methodology and argued that monthly-rebalanced returns may not be a good estimate of how a buy-and-hold strategy performs over five years. Therefore, they measured the abnormal returns by the difference between five-year holding period returns of sample stocks and matching stocks (chosen to control for size and book-to-market effects). The return reported varied significantly and ranged from -25% for stock mergers to 61.7% for cash tender offers. The difference is quite significant, ranging from -25% for stock mergers to 61.7% for cash tender offers.

Madura and Wiant (1994) also used two methods of computing the abnormal return in order to examine the long-term valuation effects of 152 bank acquisitions between 1983 and 1987 in the USA. Their results show that banks experienced negative abnormal returns on average over the 36-month period following the acquisitions where the CAR reached -27.06% in the 36<sup>th</sup> month. The Proportional Abnormal Return revealed similar results but at a lower magnitude of -18.77% in the 36<sup>th</sup> month<sup>15</sup>. These results are similar to those of Agrawal et al. (1992), and consequently these results lend support to the agency problem as explained by Madura and Wiant, (1994). Moreover the post acquisition performance was higher for intrastate

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previous literature (e.g. Dimson and March, 1986; Agrawal et al, 1992; Gregory et al, 1994; Kennedy & Limmack, 1996; and Fama and French, 1996).

<sup>15</sup> The PAR is calculated using the buy-and-hold method by calculating the difference between the actual and the expected change in value and then dividing by the expected change in value from the two-factor model applied to measure the expected return.

acquisitions, acquisitions by relatively low-growth banks, and acquisitions by relatively low-performance banks. The implications of these results are that the bank performance is more favourable when banks have more opportunities to reduce redundant operations, and when banks are more focused on attempting to make their acquisitions work.

Some challenges face event study methodology and deem its outcome debatable, one of these challenges is that the event day must be accurate in order to capture the market reaction which is due to this specific event at the specific date examined. Secondly, consideration should be taken for confound events, that is, the event during the period of examination must be the only event that stimulates the market to react; otherwise, the measurement of the market reaction might be biased in either directions. Having said that, we believe that the measurement of the long-term announcement effect cannot be reliable as such, since the long-term horizon carries many events that affect the firm share price therefore, this renders the outcome biased as well. Examples of such events could be the announcement of the annual report, the interim results, or the engagement in a new research and development project etc... Moreover, Barber and Lyon (1997) document that there are significant biases in test statistics when long-run abnormal returns are calculated using a reference portfolio, such as the market index. They identify three reasons for these biases: the new listing bias, the rebalancing bias, and the skewness bias<sup>16</sup>. Cumulative abnormal returns are most affected by the new listing bias. *“As a result, long-run cumulative abnormal*

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<sup>16</sup> The three biases are defined in Barber and Lyon (1997) page 342 as: new listing bias arises because in event studies of long-run abnormal returns, sampled firms generally have a long post-event history of returns, while firms that constitute the index (or reference portfolio) typically include new firms that begin trading subsequent to the event month. The rebalancing bias arises because the compound returns of a reference portfolio, such as an equally weighted market index, are typically calculated assuming

*return and the associated test statistics are generally positively biased. In contrast, long-run buy-and-hold abnormal returns are more affected by the rebalancing and skewness biases. As a result, long-run buy-and-hold abnormal returns and the associated test statistics are generally negatively biased'* Barber and Lyon (1997), page 370.

The literature examining the market reaction to M&As announcement in the banking industry has been, to a large extent, limited to the studies covering the USA bank merger experience. The conclusions reached by these studies were similar to the findings of non-bank mergers, albeit they cannot be generalised to the European context.

Cybo-Ottone and Murgia (2000) is the only event study that examined the European banking Merger. The sample consisted of 54 M&As deals observed from 1988 to 1997. The main findings were that there is a positive and significant increase in value for the average merger at the time of the announcement, (-1,0) event window<sup>17</sup>, of 2.06%. Their results for acquiring banks were not robust for the benchmark used and thence they contradicted one another.

The studies that examined the M&As in the USA banking industry reached a consistent conclusion that target shareholders gain, see for example Neely (1987), Trifts and Scanlon (1987), Hawawini and Swary (1990), Cornett and Tehranian (1992), and Pilloff (1996). However the outcome regarding the acquiring bank

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periodic (generally monthly) rebalancing, while the returns of sample firms are compounded without rebalancing. The skewness bias arises because long-run abnormal returns are positively skewed.

<sup>17</sup> (-1,0) event window is the two-day announcement window where -1 is relative to the announcement day, i.e. a day before the announcement day, and the day zero is the announcement day.



shareholders is still ambiguous. We provide a more detailed discussion of the market reaction to merger announcement in the banking industry in chapter 3.

#### **2.4.1.2 The effect of the method of payment.**

The outcome from market return studies may vary according to various characteristics that accompany the deal; one of the major variables is the method of settlement. M&As participants have used several ways, ranging from pure cash offers, equity exchange offers to a combination of various means such as cash, equity, and loan notes. Nevertheless, every method of settlement signals certain information to the market concerning the likelihood of the acquiring firm financial status or valuation, according to this information, the market reacts to value the expected outcome of the merger deal.

Consequently, many theories have been formulated to explain the differences in abnormal returns associated with various payment methods the main ones are discussed below.

1- the larger abnormal returns observed for target shareholders in cash bids are consistent with a tax explanation. That is, target shareholders are taxed immediately for capital gains in cash mergers, but the taxes are deferred in mergers involving equity exchange until the shareholders sell their shares in the newly merged firm.

A cash offer, therefore, would have to be larger than a stock offer to offset the increased target shareholders' tax liability (Hansen, 1987; Huang and Walkling, 1987). Moreover, Huang and Walkling (1987) argues that, transactions that use other

payment methods (e.g., convertible preferred stocks) can be tax-deferred or taxed immediately, depending on the specific situation.

2- the other explanation is the asymmetric information explanation. That is, one reason why bidders may use cash as a method of payment (if the bidding firm managers believe that their own firm's shares are undervalued) is to avoid issuing undervalued equity (Travlos, 1987; and Brown and Ryngaert, 1991). Assuming that the bidder would only issue correctly valued or overvalued shares, target shareholders may then be concerned that the bidding firm is overvalued. Therefore, they would prefer cash, because from their own perspective a cash offer reduces the advantages of asymmetric information. Finally the market would value a cash offer as a more valuable offer than equity which value might deteriorate if it was overvalued, although you can sell the shares immediately<sup>18</sup>. Moreover, Myers and Majluf (1984) and Loughran and Ritter (1995) argue that the method of financing an investment conveys (signal) information. They argue that when the firm sells shares to finance a new project, it is because managers judge the firm's shares to be overvalued. Consequently, equity financed acquisitions would result in lower abnormal returns for the acquiring firm than a cash financed acquisition.

The studies that examined the effect of the payment method on the return to acquirers had, one more time reached contrasting conclusions. Some studies, in non-banking M&As, found higher returns to acquirers in cash deals than in equity deals (Travlos, 1987; Agrawal et al., 1992; Sudarsanam, Holl and Salami, 1996; Gregory, 1997; and Loughran and Vijh, 1997). On the other hand other studies in the literature reported

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<sup>18</sup> Although there could be transactions costs and also the possibility that the shares could not be disposed of immediately and a price decline might occur.

contrasting results (Allen and Sirmans, 1987 and Chang, 1998). Chang (1998) found, for stock bidders acquiring privately held targets, a two-day positive return of 2.64% and insignificant 0.09% return for cash bidders.

Another line of enquiry revolved around whether the negative acquirer returns is due to value transference to the bondholders. Travlos (1987) finds that non-convertible bondholders do not gain at the announcement of take-over bids. He also finds that there is weak statistical evidence that they lose when the acquisition is financed with common stock, implying that the wealth transfer to bondholders is not the source of the negative abnormal stock returns to the bidders in stock exchange offers. Other studies on acquisitions provide mixed evidence on the existence of wealth-transfer effects. Kim and McConnell (1977), Asquith and Kim (1982), and Dennis and McConnell (1986) find that non-convertible bondholders of bidding firms neither gain nor lose from mergers. While Eger (1983) reports marginally significant ( $t$ -test = 1.69) positive abnormal returns to the bondholders of bidding firms at event day  $t = 0$ . However Davidson (1985) argues that in the case of the offer taking the form of debt securities in the bidder, there may be value transference implications if the shareholders of the target firm have inferior information regarding the prospects of the combined firm, or where other debt securities are in issue.

Further analysis by Chang (1998) revealed that bidding firms returns in stock offers are positively correlated with the presence of a new blockholder from the target and the amount of common stock issued to target shareholders. The evidence is consistent with the view that large shareholders are effective monitors of managerial

performance and enhances the take-over prospects of the firm (Demsetz and Lehn, 1985; and Shleifer and Vishny, 1986).

However, concerning the returns to target shareholders and the total returns from merger, the general conclusion in the literature of non-bank merger is that these returns, in cash deals are higher than in equity exchange offers, e.g. Gordon and Yagil (1981); Wansley, Lane and Yang (1983); Eckbo and Langohr (1986); Niden (1986); Huang and Walkling (1987); Franks, Harris and Mayer (1988); Queen (1989); Franks, Harris and Titman (1991). Moreover, Davidson and Cheng (1997) found that target firm abnormal returns at the bid announcement are unrelated to payment method after they control for the bid premiums. They showed, instead, that cash acquisitions are associated with larger bid premiums, and it is these larger premiums that are positively related to abnormal returns.

On the other hand the limited evidence from bank merger is mixed. Cornett and De (1991a, 1991b) find no statistically significant difference in the excess returns, for target and acquirer shareholder and the total return, earned in mergers involving cash offers and stock offers. Whereas other studies reported that returns to target shareholders and weighted-average returns in cash deals are higher than in equity exchange offers (Baradwaj et al, 1991). Hawawini and Swary (1990) find that bank acquirers receive higher abnormal returns when acquisition is paid for in cash. In addition Beatty et al (1987) and Rogowski and Simonson (1987) found a positive relationship between cash transactions and the bid premium.

The literature about European bank merger has not covered this area yet, we therefore intend, as part of this thesis, to contribute to filling this gap.

### **2.4.2 Operating performance and X-efficiency Studies.**

The second approach used to evaluate the effect of merger on firm performance has been the examination of the operating performance change due to the merger. The early evidence from studies of non-bank merger that used accounting ratios, has reached a consensus that merger did not improve operating performance.

Singh (1971), Utton (1974), Meeks (1977), and Kumar (1984) provide evidence for UK mergers that the majority of the amalgamations experienced a decline in profitability after merger. An exception was Cosh, Hughes and Singh (1980) who found a small improvement in profitability. Other studies that reported decrease in profitability included Peer (1980) for mergers in Netherlands, Ryden and Edberg (1980) in Sweden. Other studies reported no statistically significant change in profitability for mergers in Germany (Cable, Palfrey and Runge, 1980), Belgium (Kumps and Wtterwulghe, 1980), France (Jenny and Weber, 1980), and USA (Mueller, 1980). While Ravenscraft and Scherer (1987) reported very small profitability improvement between 1975 and 1977 for merger in USA between 1950 and 1976.

The contrasting findings of these studies could be due to various sample size, location and time period or even to methodological shortcoming. For instance Ravenscraft and Scherer (1987) measured the operating performance between 1975 and 1977 for firms which merged between 1950 and 1976. Those firms, which merged in 1950, have

probably changed drastically after a quarter of a century due to circumstances other than merger. On the other hand accounting rates of return studies are always criticised for the inability of those rates to measure economic profitability (Fisher and McGowan 1993). The main draw back of which is the substantial distortions, which the choice of accounting treatment of take-over can introduce into the conventional profitability measures (Chatterjee and Meeks 1996). This fact was acknowledged by other studies which opened the gate for other measures of performance to be used such as cash flow measures.

Healy, Palepu, and Ruback (1992) used the industry adjusted operating cash flow return on market value of assets for 50 USA take-overs between 1979 and 1984. They found that merged firms show significant improvement in asset productivity relative to their industries, leading to higher median operating cash flow returns for 5 years after merger. Higson and Elliot (1994) looked at the performance of UK takeovers using both a profit to book measure and cash to market measure. For the complete sample of 310 takeovers they found that there is a decline in median profitability (profit/book) in all 5 years post takeovers. In contrast there is an improvement in the cash flow / market measure in all 5 years post takeover when the sample is restricted to 50 large takeovers. The cash flow return on market value of equity measure was also used by Cornett and Tehranian (1992) for USA bank mergers. We explore this methodology and the findings of Cornett and Tehranian, 1992 in chapter six.

However, the studies that aimed to measure the operating performance change after merger in the banking industry tended to measure various sides of bank performance, which represented potential improvement ex ante for analysts and bank managers.

The potential performance improvement through consolidation, which maximises shareholders' value in the long-term, can be attained through increasing market power in setting prices, improving profitability and/or efficiency, or via product and/or market diversification.

#### **2.4.2.1 Market Power Change.**

A number of studies examined the effects of M&As on the merging banks in terms of gaining market power in setting prices for loans and deposits. The evidence from these studies was mixed; Prager and Hannan (1999) found that M&As that involve increases in market concentration, reduced the deposit rates paid by the merging partner. On the other hand an earlier study found contrasting results (Simons and Stavins, 1998). Moreover, Akhavein et al., (1997) analysed the mega-mergers in the USA and reported a slight decrease in loan margins and an increase in deposit margin following merger. Whereas, Sapienza (1998), in a study of Italian M&As, found that when there was market overlap, the loan rates increased when the market share of the acquired bank was large, opposite findings were documented when the market share was small.

#### **2.4.2.2 Accounting Ratios Change.**

A number of studies examined efficiency improvement due to M&A and used various accounting ratios to analyse primarily, profitability and cost ratio changes.

*Profitability ratios:* One group tended to measure the profitability change relative to a benchmark of non-merging banks. Most of those studies used the two popular ratios return on assets (ROA) and return on equity (ROE). (we provide a comprehensive summary of these studies covering the methodology they used, the sample size, time

period, geographic location, the ratios analysed and their main findings in table (2.1). Some of them reached a conclusion of no improvement in profitability for various samples, time periods, and geographic location (Rhoades, 1986; Berger and Humphrey, 1992; Linder and Crane, 1992; Pilloff, 1996; Akhavein et al., 1997; Chamberlain, 1998). Kwan and Eisenbeis (1999) found a significant decrease in ROE. Whereas, the evidence of profitability improvement is limited to very few studies in the USA such as: Spindt and Tarhan (1992), Cornett and Tehranian (1992) and to Vander Vennet (1996 and 1999a) in European bank mergers. Spindt and Tarhan (1992) reported improvement in ROE but not in ROA.

Expenses ratios: Some other studies examined the change in the bank cost behaviour, and used items such as: non-interest expenses, personnel expenses, and overheads scaled down most of the time by assets, or sometimes by revenues. The general conclusion for USA bank mergers is that cost ratios do not show any improvement after merger (e.g. Rhoades, 1986; Rhoades, 1990; Spindt and Tarhan, 1992; Berger and Humphrey, 1992; Cornett and Tehranian, 1992; Srinivasan and Wall, 1992; Peristiani, 1993a). Whilst some other studies documented a decrease in some or one of the ratios they analysed e.g. Linder and Crane (1992) and Crane and Linder (1993) using non-interest expenses to assets, Spong and Shoenhair (1992) for the overheads to assets ratio, and Pilloff (1996) for the expenses to assets ratio. However Kwan and Eisenbeis (1999) found that one ratio only, the expenses to assets, improved after merger. The findings for the European banking merger stand in sharp contrast to the majority of the USA merger studies and show improvement in the personnel expenses to assets ratio (Vander Vennet, 1996) and in the cost to income ratio (Vander Vennet, 1999a) for domestic merger of equal partners.



In general, efficiency may be improved in a number of different ways. M&A may allow the merging partners to achieve economy of scale and/or economy of scope, or it may provide the institutions with the ability to change the output mix in a more profitable manner (Berger et al., 1999). The difference in results between USA and European bank mergers could be due to the ability of achieving scale economies in Europe at a higher level of assets size<sup>19</sup>. Moreover less restrictions on universal banking in Europe could be another source for improving performance<sup>20</sup>. However, the evidence of efficiency improvement through M&As in Europe is further explored in chapter six.

In addition to the effect of the accounting treatment on the accounting ratios, other critics consider that the drawback of the accounting ratios is that they incorporate both changes in market power and changes in efficiency, which can not be disentangled without controlling for efficiency (Berger et al., 1999). Hence we provide the findings of efficiency studies in the next sub-section.

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<sup>19</sup> The early evidence from US studies showed that scale economies are exhausted at very low levels (Clark, 1988) and the measured inefficiencies were relatively small. Moreover, recent US studies documented the evidence of scale economies being at a higher level of assets size, up to \$10 billion, which increases when the banks in the sample are larger (e.g. Noulas, Ray and Miller, 1990; Hunter, Timme and Yang, 1990; Berger and Humphrey, 1991; Bauer et al., 1993; and Clark 1996). Although the findings vary considerably, Berger et al. (1999) observes that there are no scale efficiencies to be gained. For the European Community, Vander Venet (1994a) reports scale economies up to 25 billion USD in loans for a sample of 1500 EU banks, while Vander Venet (1994b) finds significant scale economies up to a size level of \$3-10 billion of total assets.

<sup>20</sup> In most European countries, the ability to perform investment banking functions had been broadened since the mid-1980s. In Germany and several Nordic countries, few if any restrictions have existed. On the other hand the amendment of the Glass-Steagall act, in the USA, by the Federal Reserve raised the ceiling on the proportion of total revenue a commercial bank can earn from underwriting corporate debt and equity from 5% to 10% in 1989 and further to 25% in 1996 only Vander Venet (1999b). Although US banks are more restricted than European banks, they do undertake a number of nontraditional activities (Rogers 1998).

### **2.4.2.3 Cost and Profit Efficiency change.**

Measurement of the cost and profit efficiency effect of merger has been another important dominating issue in the literature of M&A. The data on banks merger suggest that there are substantial potential cost efficiency gains from megamergers that dominate the minor anti-competitive effects. Prior studies of bank efficiency found average inefficiency to be 20% or higher, primarily due to X-inefficiency or difficulties in managerial cost control<sup>21</sup>. The X-efficiency of a bank is measured by how close its costs or input requirements are to those of a best-practice, fully efficient firm within the data set, holding constant the effects of scale, product mix, input prices, and other exogenous influences on bank costs<sup>22</sup>. The efficient frontier is estimated using a cost function and all other firms are measured relative to this frontier<sup>23</sup>. In other words the cost function includes prices of input variables, such as cost of labour and capital, and output variables related to business of the bank such as loans and other earning assets. The process then produces cost functions for every bank in the set, the bank with the least total costs using the same output, and input prices is the best practice bank and thence others in the sample are compared to it.

The findings of such a high inefficiency in banks provide a good ground for a considerable potential for cost improvements from mergers, provided that relatively efficient banks acquire relatively inefficient banks and restructure them so that the

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<sup>21</sup> For a general review of X-efficiency studies of financial institutions, see Berger and Humphrey (1997).

<sup>22</sup> Berger, AN., Humphrey, D.B., 1992. Megamergers in banking and the use of cost efficiency as an antitrust defence. *Antitrust bulletin* 37, 541-600.

<sup>23</sup> There are various forms of cost functions used in the literature such as: the Cobb-Douglas cost function, the constant elasticity substitution (CES) function, the Generalised Lieontief function, the quadratic cost function, the translog cost function, and the hybrid translog cost function. Other approaches to estimating efficiency in banking markets included the stochastic cost frontier and Data Envelopment Analysis. The most popular of these is the translog cost function which was developed for a single output technology by Christensen, Jorgenson and Lau (1971, 1973); the multiple output case was defined by Burgess (1974) and Diewert (1974) (quoted from Altunbas, 1994).

efficiency of the consolidated institution levels that of the acquiring bank. However, it is worth mentioning that other studies (e.g. DeYoung, 1993) find that efficiency improvements are more likely when both the acquiring and the acquired firms are relatively inefficient prior to merger rather than when the acquiring firm is more efficient.

Similar to the cost ratio studies, the studies of US banking generally show, either very little effect, or no cost X-efficiency improvement on average from the M&As of the 1980s, of the order of 5% of costs or less (Berger and Humphrey, 1992; Rhoades, 1993; DeYoung, 1997; Peristiani, 1997). On the other hand the efficiency studies using data from the early 1990s are mixed. Rhoades (1998) summarised nine case studies, by nine authors, on the efficiency effects of bank mergers, and found modest cost X-efficiency gains in most cases. Berger (1998) also found little improvement in average cost X-efficiency for M&A of either large or small banks. On the other hand the evidence for European bank merger is limited to Vander Venet (1996) who found that cross-border mergers and domestic mergers of equal partners improve X-efficiency. We discuss this paper and Cornett and Tehranian (1992) in more details in chapter 6.

However, two studies of the profit efficiency effects of US bank M&A found that M&As improved profit efficiency, and the source of this improvement could be higher diversification of risks (Akhavain et al., 1997; Berger, 1998). Fixler and Zieschang (1993) obtained consistent findings by using a Tornqvist productivity index; a value-weighted output index divided by a value weighted input index, which is similar to profit efficiency.

The main difference between the Tronqvist productivity index and the cost functions is that the Tronqvist index results are determined based on the endogenous variables of the banks, that is deposits, and other funds, and loans and other assets. Whereas the cost functions use the prices of input not the input themselves and tend to estimate inefficiency by assuming that the total cost deviates from the optimal cost by a certain amount which is a stochastic variable in the model.

## **2.5 Conclusion.**

The level of takeover activities has been accelerating everyday around the globe. The phenomenon has been a contagious one for almost every country. Research in the field of M&A has been enormous and academics have used mainly two streams of methodologies to measure the takeover performance of the firms involved. Authors using event study methodology have, in general, reached consistent conclusion that the target shareholders gain and this gain varies significantly from one study to another depending on the sample characteristics, the model and method used to measure the abnormal returns, or the period involved. However the debate is still intense concerning the return to bidders shareholders and the total outcome of the merger. While the findings of most of the research done agree on minimal gain to no gain to the bidder shareholders, yet other research findings contradict this conclusion and present evidence of negative gains to the shareholders of the bidder firm and a negative aggregated total gain. This latter result, of negative total gain seems consistent with the outcome of the majority of the operating performance studies whether they used accounting ratios or estimates of cost and production functions.

**TABLE (2.1): Summary of earlier post-merger performance studies in Banks M&A**

<b>Study (Year Studied). Country</b>	<b>Sample size. (Country)</b>	<b>Methodology</b>	<b>Performance Measures</b>	<b>Main Findings</b>
<b>Frieder and Apilado (1983) 1973-1977 (USA)</b>	106. These are affiliates of 4 large BHC's.	Based on hypothetical measures of performance. Compares actual with hypothetical earnings per share and net income of the BHC (Bank Holding Company) assuming that the merger did not happen. The accounts are affiliated for one year or more after acquisition depending on data availability.	Hypothetical measures of earnings per share and net income	Profitability improvement is found for the BHC bank.
<b>Rhoades (1986) 1968-1978 (USA)</b>	413	Examines the operating performance change, for the acquired bank only, during year 4 and 6 after acquisition compared to the average of three years pre-acquisition. The benchmark used is 3600 non-acquired banks from the same market.	Net income to Total assets. Non-interest expenses to Total assets.	Non improvement of both measures of performance, Net income to Total assets and Non-interest expenses to Total assets ratios, compared to the non-acquired banks. The pre-merger performance of the merging institutions does not differ from the non-merging banks. No evidence of higher growth and market share was also found for these mergers compared to the benchmark.
<b>Rose (1987a) 1970-1985 (USA)</b>	106	Examines the operating performance change, for the combined entity of target and acquirer bank for the period of 1 year and 3 year pre-merger with several periods after merger extending till 8 years. The benchmark is a group of 106 non-merging banks matched based on size and geographical location.	Return on Assets and Return on Equity.	Both ratios used do not exhibit performance improvement after merger compared to the benchmark. The pre-merger profitability of the merging banks does not differ from that of the benchmark as well. Assets, deposits, and net earnings after tax growth, and market share of the merged banks do not improve as well.
<b>Rose (1987b) 1970-1980. (USA)</b>	40 acquiring banks and 138 acquired banks	Examines the operating performance change, for the period of 5 years before merger to 5 years after merger. The benchmark is a group of non-merging banks matched based on size and geographical location.	Return on Assets. Return on Equity. Operating revenues to Operating expenses. Revenues to Employees. Assets to Employees.	Cost efficiency, profitability, and employee productivity (assets to employees) do not improve for the acquiring firms after merger compared to the non-merging banks. Acquired banks do not perform as good as the non-merging banks before merger. Acquired banks are more profitable than the acquiring banks before merger.

Continued Table (2.1).

<p><b>Rhoades (1990)</b> <b>1981-1987</b> (USA)</p>	<p>68 both targets and acquirers have more than \$1 billion of assets.</p>	<p>Studies the operating performance change of the target banks only for the average of 3 years before and 3 years after merger. The post acquisition period covers only 13 target banks.</p>	<p>Return on Assets. Non-interest expenses to Assets</p>	<p>Both performance measures do not show improvement after merger for the target banks compared to non-acquired banks. The pre-acquisition performance of the target banks is similar to the non-acquired banks.</p>
<p><b>Spindt and Tarhan</b> <b>(1991) 1986</b> (USA)</p>	<p>297 (61 intra- BHC and 236 newly acquired)</p>	<p>Examines the operating performance change for the years 1 and 2 before and after merger. A benchmark matched on size and location is used.</p>	<p>Return on Equity. Return on Assets. Employee expenses to Revenue.</p>	<p>ROA of newly acquired firms does not improve after merger. While ROE does. The Employee expenses to assets ratio does not improve. No performance improvement is evident for Internally merged firms. ROA and employee to assets ratio are lower than the acquirer ratios before merger for the externally merged firms. Whereas, internally merged firms show similar performance before merger for the target and acquiring firms.</p>
<p><b>Berger and Humphrey (1992)</b> <b>1981-1989</b> (USA)</p>	<p>57 acquiring and target firms have more than \$1 billion in assets.</p>	<p>Estimates a translog total cost function for every year between (1980 and 1990). X-efficiency performance and the other measures are used to rank merging firms before and after merger relative to their peers. Acquiring and acquired firms are treated as one combined entity before and after merger.</p>	<p>X-Efficiency rank. Total efficiency rank. Return on Assets. Average total costs to assets. Non-interest expenses to assets.</p>	<p>No evidence of cost efficiency or profitability improvement is found. Firms involved in in-market mergers do not show efficiency improvement compared to other mergers. Mergers where the target firms are less efficient than the acquiring firms do not lead to efficiency improvement compared to other mergers.</p>
<p><b>Cornett and Tehrani (1992)</b> <b>1982-1987</b> (USA)</p>	<p>30 15 interstate and 15 intrastate mergers</p>	<p>In addition to the market reaction to merger announcement, the operating performance is examined for 3 years before and 3 years after merger. Banks are treated as one combined entity. Uses the industry figures as a benchmark</p>	<p>Cash flow to market value of assets. Expenses to Revenues. Return on Equity. Return on Assets. And other bank performance indicators for capitalisation, loan quality, liquidity risk, and interest rate risk.</p>	<p>No improvement in ROA and in the efficiency ratio, but ROE improves, so do the Cash flow return on assets and the employee productivity. Capital to assets ratio, loan quality, liquidity and net interest income to earning assets do not change. Whereas, loans to equity, loans to assets, and deposits to equity show significant improvement compared to the industry figures.</p>

Continued Table (2.1).

<p><b>Linder and Crane (1992) 1982-1987 (USA)</b></p>	<p>47 (25 intra-BHC and 22 newly acquired)</p>	<p>Operating performance change is examined for one year before merger and two years after merger. Target and acquiring firms are treated as a combined entity. The industry figures for the same state are used as the benchmark figures</p>	<p>Operating Income to assets. Non-interest expenses to assets. Growth in income and assets.</p>	<p>Operating income to assets does not improve after merger. Non-interest expenses ratio declines after merger compared to non-merging firms. In general Intra-BHC mergers show better performance improvement than newly acquired firms, in terms of profitability and growth in profitability. The profitability improves for the Intra-BHC mergers, whereas the cost efficiency declines.</p>
<p><b>O'Keefe (1992) 1984-1990 (USA)</b></p>	<p>469 (the sample includes 123 assisted merger)</p>	<p>The operating performance is examined for the period of two years before merger to two years after merger. Acquiring and acquired firms are treated as a combined entity.</p>	<p>Return on assets. Return on equity. Non-interest expenses to assets. Interest expenses to assets</p>	<p>Profitability and cost efficiency do not change after merger for either type of merger (assisted and not assisted).</p>
<p><b>Rose (1992) 1980-1989 (USA)</b></p>	<p>279</p>	<p>Operating performance is examined for 5 years before and 5 years after merger. The performance of acquiring banks is examined separately.</p>	<p>Return on assets. Return on equity. Operating expenses to total revenue. Non-interest operating expenses to total expenses. Non-interest expenses per employee.</p>	<p>No evidence for performance improvement compared to the non-merging firms for all the measures used. Unadjusted analysis shows improvement in ROE only.</p>
<p><b>Spong and Shoenhair (1992) 1985-1987 (USA)</b></p>	<p>179</p>	<p>Operating performance change for the acquired banks only for one year before merger and 1 to 3 years after merger. A benchmark based on size and location is used.</p>	<p>Return on assets. Return on equity. Overhead costs to assets. Personnel expenses to assets</p>	<p>Overhead costs to assets improve relative to benchmark. Mean ROA and ROE decline while the median ROA and median ROE do not change.</p>

**Continued Table (2.1).**

<p><b>Srinivasan and Wall (1992) 1982- 1986 (USA)</b></p>	<p>240 firms have \$100 million in assets</p>	<p>Examines the performance change for 2 year before merger and 1 to 4 years after merger. Both firms are considered as one entity.</p>	<p>No improvement in cost efficiency is found. Greater office overlap is associated with lower costs after merger but not with efficiency gain.</p>
<p><b>Srinivasan (1992) 1982-1986 (USA)</b></p>	<p>240 firms have \$1 million in assets</p>	<p>Examines operating performance in terms of efficiency changes for 2 years before to 4 years after merger. Target and acquiring firms are treated as one combined entity.</p>	<p>Efficiency in general does not improve after merger compared to non-merging firms. In-market mergers efficiency change is similar to other mergers efficiency change. Mergers of equals lead to efficiency gains compared with firms in other mergers.</p>
<p><b>Shaffer (1993) 1984-1989 (USA)</b></p>	<p>About 20000 simulated mergers of more than \$1 billion in assets</p>	<p>Uses multi-product translog cost function to simulate mergers of USA banks.</p>	<p>Economies of scale are exhausted at \$7.6 billion of assets. Total cost, on average, decreases. Cost savings are very rare for banks larger than \$10 billion in assets. Interstate merger lead to cost reduction while intrastate mergers increase costs. Branch closing provides very limited scope for cost reduction. Cost reduction scenario depends on which banks transfers its x-efficiency status to the other.</p>
<p><b>Crane and Linder (1993) 1991 (USA)</b></p>	<p>1 case study</p>	<p>Analyses the operating performance change one year after the merger of Fleet and bank of New England. Examines the firm's projections for cost cutting. No benchmark is used</p>	<p>Non-interest expenses declined about 30%, as projected by the merging bank, compared to 10% decline in assets. The acquirer was more efficient than the target bank before merger.</p>
<p><b>DeYoung (1993) 1987-1988 (USA)</b></p>	<p>348 (including failed banks mergers, and inter-BHC mergers)</p>	<p>Examines changes in X-efficiency for 1 year before merger and 4 years after merger based on a "thick" cost frontier that total cost to total assets is estimated from a multi-product production function. The pre-merger cost efficiency is examined for both parties and compared to the benchmark. Improvement in efficiency is examined by comparing the position of the merging firms after merger with the position of the acquirer only before merger, relative to the benchmark.</p>	<p>Merger does not lead to efficiency gains. Efficiency gains are associated with the pre-merger inefficiency of the merging parties rather than with the acquirer being more efficient than the target. Acquirers are more efficient than targets before merger.</p>



**Continued Table (2.1).**

<p><b>Peristiani (1993a)</b> <b>1981-1988</b> (USA)</p>	<p>2000</p>	<p>Analyses operating performance change for 1 year before and 2 to 4 years after merger. The study also examines several sub-samples: intra-BHC, largest 200 mergers, mergers before 1986... the target and acquirer are treated separately before merger.</p>	<p>Return on assets. Non-interest expenses to assets.</p> <p>In-market mergers do not generate any improvement. Sub-samples results vary but still no evidence of improvement is found.</p>
<p><b>Peristiani (1993b)</b> <b>1981-1988</b> (USA)</p>	<p>4900 2000 of which are intra-BHC mergers</p>	<p>Examines the operating performance change, scale efficiency and X-efficiency for 1 year before merger and average of 2 and 4 years after merger using profitability and efficiency ratios. Treats the parties as one combined entity. Analyses determinants of merger using OLS regression. Multiple mergers in one year are treated as single merger.</p>	<p>Return on assets. Non-interest expenses to assets. Scale efficiency and X-efficiency change.</p> <p>Non-interest expenses ratio does not improve for firms in multiple mergers but improves for firms involved in single mergers. ROA improves after merger compared to the benchmark. X-efficiency does not improve. Scale efficiency improves for firms in multiple mergers and declines for firms in single mergers. Overlap between the merging partners, in terms of deposits or branch location is not related to the efficiency and profitability changes.</p>
<p><b>Rhoades (1993)</b> <b>1981-1986</b> (USA)</p>	<p>898 BHC involved in In-market mergers.</p>	<p>Operating performance change is examined for 3 years before and 4 to 6 years after merger. The same process is followed for efficiency ranks in addition to the ratio analysis. Merging partners are treated as a combined entity.</p>	<p>Total expense to assets. Non-interest expenses to assets.</p> <p>Both ratios do not show any improvement after merger compared to the control group on non-merging firms. Office overlap is not associated with efficiency improvement. Acquirers are more efficient than acquired banks.</p>
<p><b>Pilloff (1994)</b> <b>1982-1991</b> (USA)</p>	<p>48</p>	<p>In addition to an event study, the operating performance change is examined for 2 years before and 2 years after the merger. Two benchmarks are used, one regional and another national. A correlation between the stock return and the post-merger performance change is examined.</p>	<p>Return on assets. Return on equity. Total expenses / assets. Expenses / revenues. Non-interest expenses to assets. And other performance measures.</p> <p>Very thin evidence of improved profitability based on one measure of ROE compared to other 5 measures. Cost efficiency, measured by expenses to assets, decreased. Other measures of cost efficiency do not show any change. Equity to assets ratio decreased after merger. Deposits to assets and loans to assets ratios do not change after merge. No correlation between the stock return and the change in performance.</p>

**Continued Table (2.1).**

<p><b>Vander vennet (1996) 1988-1992 (EU)</b></p>	<p>492 including 70 cross-border mergers</p>	<p>The analysis covers from 3 years before to 3 years after merger. Three sub-samples are studied based on the legal aspect of the deal. Accounting ratios and efficiency rank estimates based on translog cost function are used for the analysis.</p> <p>Return on assets. Return on equity. Personnel expenses to assets. Operating efficiency ranks</p>	<p>Domestic mergers of equal partners show improvement in ROE, labour costs, operating expenses and in the X-efficiency ranks, but deterioration in liquidity, while other measures such as: ROA, revenue to assets, assets to capital funds, and credit quality do not change. In cross-border mergers the target banks improve in terms of efficiency but not profitability. Target banks are less profitable and efficient than acquirers, while they are more capitalised than the acquirers in the pre-merger period. Domestic acquisitions of smaller banks do not lead to any performance improvement.</p>
<p><b>Peristiani (1997) 1980-1990 (USA)</b></p>	<p>2045</p>	<p>Examines the operating performance change for 1 to 2 years before merger and average of 2 to 4 years after merger using profitability and efficiency ratios. Compares also changes in scale efficiency, X-efficiency, and X-efficiency Ranks from 1 year before merger to the average of 2 to 4 years after merger. Treats the parties as one combined entity. Analyses determinants of merger using OLS regression. Multiple mergers in one year are treated as single merger.</p> <p>Scale efficiency X-efficiency change. Rank X-efficiency.</p>	<p>X-efficiency and X-efficiency ranks decrease for intra-BHC mergers, while it does not change for Intrastate mergers and FDIC assisted mergers. Scale efficiency improves for all class of mergers. The optimal scale efficiency point is for banks of \$800 million of assets size approximately. Mergers benefit if an acquirer takes-over under-performing target in terms of ROA, non-interest expenses and scale efficiency. Overlap between the merging partners, in terms of deposits or branch location is not related to the efficiency and profitability changes. Credit risk change is a major determinant for profitability and costs. Loan to assets increase negatively affects profitability and positively affects costs, similar conclusion is obtained for employment growth.</p>
<p><b>Kwan and Eisenbeis (1999) 1989-1996 (USA)</b></p>	<p>94 publicly traded banks merger</p>	<p>In addition to event study, examines operating performance change for 8 quarters before to 8 quarters after merger. Merging partners are treated as a single entity. Industry figures are used as a benchmark</p> <p>Return on assets. Return on equity. Total expenses / assets. Expenses / revenues. Non-interest expenses to assets. And other performance measures.</p>	<p>ROE dropped significantly. Expenses to assets and premises to assets increased. Equity to assets and loans to assets increased. Other measures such as: expenses to revenues, non-interest expenses to assets, and salaries to assets do not change.</p>

**Continued Table (2.1).**

<p>Vander Vennet (2000) 1988-1992 (EU)</p>	<p>428</p>	<p>Uses a logit model to examine the determinants of EU bank mergers. Analyses three samples, based on the legal aspect of the deal (majority participation, full acquisition, merger of equals), characteristics of both partners is examined using 3 pre-merger years. Post-merger performance change is also correlated with the type of merger.</p>	<p>Return on assets. Return on equity. Cost to income ratio. Non-interest income to revenues. Loan loss provisions to net loans. X-efficiency. And other measures of concentration, overlap, capitalisation.</p>	<p>Market power and growth are the major motive for majority participation and full acquisitions. No performance improvement is evident for these types of merger. Target institutions exhibit inferior efficiency and profit levels pre-merger. They also have high loan loss provision to net loans ratio For mergers of equal partners, the combined institution is characterised also by low profitability and efficiency before merger. The performance improves after merger in terms of both ROA and Cost to income ratio. The credit risk also decreases after merger</p>
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The evidence for European bank merger is still very thin and restricted to three studies, namely Cybo-Ottone and Murgia (2000) and Vander Venet (1996, 1999a). and the outcome from consolidation is not yet fully explored. The coming change in the financial services industry around the world, and especially in Europe, in terms of technology, the regulation, the Euro and the globalisation is intensifying competition in the banking industry and changing the way these banks deliver, bundle and structure new products to their end customers. Moreover this has accelerated the level of consolidation and therefore encouraged researching the impact on bank performance change. In the next chapter we study the effect of M&As on the share price of the merging partners in Europe.

# **CHAPTER THREE: MARKET VALUATION OF THE FINANCIAL SERVICES M&As IN EUROPE**

## **3.1. Introduction.**

Despite the extensive research in the M&As area the increase in the pace of M&As still requires more research to try to explain this ever-increasing phenomenon that influences the nature of industrial organisations and corporate ownership. In addition, the findings of the USA studies cannot be generalised to draw conclusions about the European scenario, for a variety of reasons, a particular one being the differing regulation governing the activities of the financial services industry in USA and in Europe.

The research done using event study methodology to measure the M&A performance in European Banking has been, so far, limited to one study by Cybo-Ottone and Murgia (2000). In this chapter we aim to help filling this gap in the literature, by presenting new findings and by using a larger sample with more updated data which includes some of the most important and largest deals that happened near the end of the twentieth century.

In the next section we provide some empirical evidence of the findings of the research on M&A in the banking industry. In section three we present our sample design and the data source, section four explains the methodology we used. In section five we report our findings of the market reaction to merger announcement. We conclude in section six.

### **3.2. Summary of the Empirical Evidence.**

A number of studies have examined the M&A in the banking industry, mainly in the USA. The early studies that examined the market reaction to merger announcement have concentrated on the returns to the acquiring banks, as the majority of the target banks were not publicly listed.

The event studies in the literature of banks M&A in USA differ from one another in terms of sample size; the benchmark used, the market model, the mean-adjusted return model, a two factor model etc...; the method of aggregating the abnormal returns, the cumulative abnormal return (CAR) method or the buy-and-hold (BAH) return method; the time period examined, the geographic scope they concentrated on, interstate, intrastate or within one state only; or the type of merger that took place, i.e. failing, not assisted, or hostile. Yet the general outcome concerning the target shareholders is that these shareholders gain. The magnitude of this gain then differs due to the different characteristics of each study. The target abnormal gain found ranged from as high as 30.32% in successful hostile tender offers in the largest event window (-60,60) examined by Baradwaj et al., (1990)<sup>24</sup> to 6.08% in the (-1,0) event window by Cornett and De (1991), and to as low as 4.7% for the same period by Cornett and Tehranian (1992) for the sub-sample of interstate mergers. The three studies used similar benchmarks. Whereas Zhang (1995) found 6.13% CAR for two-day announcement period using size adjusted return for the target shareholders. Other studies used weekly returns and found one-week announcement abnormal return being 15.04% (Neely, 1987), 7.4% (Trifts and Scanlon, 1987), and 11.54%

(Hawawini and Swary, 1990). On the other hand there has been also a rare evidence of zero abnormal return to the target shareholders reported by De and Duplican (1987) for the announcement week period and by Trifts and Scanlon (1987) for the (-20,0) weeks event window.

However concerning the acquiring bank shareholders, the general findings of those studies, similar to non-banking merger studies, reached contrasting conclusions. see Table (3.1) for a summary comparison of selected earlier studies. Some studies documented evidence of positive gain to the acquiring banks, those included Desai and Stover (1985), Pettway and Trifts (1985), James and Wier (1987a), and Cornett and De (1991). Other studies reported negative returns to the shareholders of acquiring banks, those included Trifts and Scanlon (1987), Hannan and Wolken (1989), Hawawini and Swary (1990), Houston and Ryngaert (1994), and Siems (1996). And others found no evidence of gain (see for example De and Duplican, 1987; and Allen and Cebenoyan, 1991) while another group reached mixed findings (Neely, 1987; Dubofski and Fraser, 1989). The same pattern of contradicting findings was also documented for the aggregated total return, which in some cases was cancelled out by the acquirer negative gain.

Although, the finding from merger studies, concerning the acquirer gain and the aggregate total gain is still ambiguous, yet the outcome from within each group of studies (positive, negative, or zero gain to acquirer shareholders or to all shareholders), as to which mergers create value is still unsettled as well.

Hannan and Wolken (1989) reported that returns for bidders or targets are not related

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<sup>24</sup> Baradwaj et al., (1990) reported an announcement period (-1,0) CAR for total sample of targets being 17.29%.

to size, net combined dollar gain does not differ between intrastate and interstate mergers and therefore merger between parties is not motivated by geographic diversification. A further finding is that net combined dollar gain is positive for deals involving less capitalised targets and negative for deals involving more capitalised targets. Desai and Stover (1985) found evidence that the relative size is not relevant in explaining bidder returns. On the contrary, Trifts and Scanlon (1987), James and Wier (1987b), De Cossio Trifts and Scanlon (1988), and Kaen and Tehranian (1989) concluded that a higher return is positively related to the size ratio of target to acquirer. On the other hand Zhang (1995) found that, a wealth gain is driven by the relative size acquirer to target not target to acquirer. We believe that these contradicting results are mainly due to differing sample size and periods examined across these studies. For example the sample size varies from 18 deals in Desai and Stover (1985) who examines the mergers from 1976 to 1982, to 107 deals in Zhang (1995) for the period 1980 to 1990.

Siems (1996) investigates the banking megamerger deals that took place in the USA in 1995. Analysing the 24 deals, the cumulative average abnormal return during three days around the announcement day was 13.04% for target banks. He concluded, similarly to Pilloff (1996) and Houston and Ryngaert (1994) that banks in mergers with higher percentage of office overlaps earned higher returns than banks in mergers with fewer office overlaps. Moreover, Siems (1996) found no evidence supporting the market power and diversification hypothesis. On the other hand, the results for the full sample are consistent with the manager-utility-maximisation hypothesis and the hubris hypothesis as for reporting total negative returns. Nevertheless, it appears that banks in in-market mergers receive higher returns because of potential cost reductions and synergistic gains as opposed to potential market power gains. While James and



Wier (1987b) found no support for the market power hypothesis as well, Hannan and Wolken (1989), Hawawini and Swary (1990), Baradwaj, Fraser and Furtado (1992), and Cornett and Tehranian (1992) found also similar findings to those of Siems (1996) that acquisitions are not driven by geographic diversification motives and that returns did not differ between interstate and intrastate merger deals. On the other hand contrasting findings to these are reported by Zhang (1995) and Cornett and De (1991) who reports a two day abnormal return of 0.55% for acquirers involved in interstate mergers.

In one of the very few event studies on European banking mergers, Cybo-Ottone and Murgia (2000) examined the stock market valuation of mergers and acquisitions in the European banking industry. Their sample consisted of 54 M&As deals observed from 1988 to 1997. Their results document that there is a positive and significant increase in value for the average merger at the time of the announcement 2.06%, (-1,0) day. They also reported significant positive returns for acquiring banks using the all sector index as the market benchmark and negative returns using the bank sector index. Their results are not consistent with the bulk of the literature in the US banking where no value creation effects are generally found. This different outcome, as they contend, stems from the different structure and regulation of EU banking markets, which are shown to be more similar to each other than to the US one. Moreover, they also reported higher abnormal returns for domestic deals, merger deals and Bancassurance deals.

**TABLE (3.1): Summary of earlier event studies in Banks M&As\***

Study (Year Studied)	Sample size, and country	Methodology	Findings			
			Target Gain	Acquirer Gain	Total Gain	Other Findings
Lobue (1984)	37 USA	Event study methodology, using monthly returns	N.A.	Positive	N.A.	N.A.
Desai and Stover (1985) 1976-1982	18 USA	The market model estimated over - 270 to -31 days.	N.A.	Positive	N.A.	The relative size target to acquirer has no effect on the acquirer return
Pettway and Trifts (1985) 1972-1981	11 failing banks (assisted merger) USA	The market model estimated over - 60 to -10 days. Geometric residual return is calculated	N.A.	Positive	N.A.	N.A.
De and Duplican (1987) 1982-1985	28 USA	The market model estimated over - 52 to -1 weeks.	Zero Return	Zero Return	N.A.	N.A.
James and Wier (1987a) 1973-1983	79 (19 are assisted mergers) USA	The market model estimated over - 80 to -11 days.	N.A.	Positive	N.A.	The number of bidders is negatively related to the acquirer abnormal returns
James and Wier (1987b) 1972-1983	60 USA	The market model estimated over - 80 to -15 days and +15 to +80 days.	N.A.	Positive	N.A.	The number of potential bidders is negatively related to the acquirer abnormal returns. Acquirer abnormal returns are positively related to the number of targets and the relative size of target to bidder. Market power does not explain the positive returns to acquirers.
Neely (1987) 1979-1985	26 USA	The market model estimated over - 119 to -11 weeks.	Positive	Mixed	N.A.	N.A.
Trifts and Scanlon (1987) 1982-1985	17 targets and 14 acquiring. USA	The market model estimated over - 61 to -41 weeks and +21 to +41 weeks.	Zero for (0,20) weeks. Positive for (-40,20) weeks	Negative for (0,20) weeks. Zero for (-40,20) weeks	N.A.	Returns are larger for mergers where the size difference between acquiring and acquired firms is relatively small
De Cossio Trifts and Scanlon (1988) 1982-1985	41 intrastate and 21 interstate. Include 18 and 11 matched deals respectively. USA	The market model estimated over - 50 to -31 weeks and +21 to +40 weeks.	Positive	Zero Return	Net Dollar Gain for 18 Intrastate deals and Zero Gain for the 11 Interstate deals	Returns are larger for mergers where the target is relatively large compared to the acquirer bank
Sushka and Bendeck (1988) 1972-1985	41 USA	The market model and the market adjusted model, using daily returns	N.A.	Negative for External mergers, and Zero for mergers within the same BHC	N.A.	N.A.

\* One study only covers the European Banking M&As.

**Continued Table (3.1).**

		23 hostile, 30 nonhostile. USA	The market model estimated over - 210 to -61 days.	Positive	Negative	Positive Dollar Gain for Hostile Deals, and Zero Gain for Nonhostile deals	Hostile bidders have a smaller negative gain than nonhostile bidders. Targets of hostile bids earn higher returns than targets of nonhostile bids. Difference in returns between successful and unsuccessful hostile bidders and between successful and unsuccessful hostile targets are not significant.
<b>Baradwaj, Fraser and Furtado (1990)1980-1987</b>							
<b>Bertin, Ghazanfari and Torabzadeh (1989)1982-1987</b>		33 failed banks merger. USA	The market model estimated over - 121 to -21 days.	N.A.	Zero Return	N.A.	N.A.
<b>Dubofski and Fraser (1989)1973-1983</b>		101 sample excludes combinations of equal. USA	The market-adjusted model. Using daily returns	N.A.	Mixed	N.A.	N.A.
<b>Hannan and Wolken (1989)1982-1987</b>		69 targets and 43 bidders. USA	The market model estimated over - 90 to -15 days.	Positive	Negative	Zero Dollar gain	Returns for bidders or targets are not related to size. Net combined dollar gain does not differ between intrastate and interstate mergers. Net combined dollar gain is positive for deals involving less capitalised targets and negative for deals involving more capitalised targets
<b>Kaen and Tehranian (1989)1979-1987</b>		31 in New Hampshire (8 bidders made all the proposals) USA	The market model estimated over - 136 to -16 days.	N.A.	Negative	N.A.	Higher return is positively related to a higher ratio of target size to acquirer
<b>Wall and Gup (1989)1981-1983</b>		23. USA	The market model estimated over - 44 to -3 weeks.	N.A.	Negative	N.A.	N.A.
<b>Hawawini and Swary (1990)1971-1986</b>		78 bidders and 123 targets. USA	The market-adjusted model and the market model estimated over -57 to -6 weeks.	Positive	Negative	Positive Dollar Gain	Intrastate deals earn higher returns than interstate deals
<b>Allen and Cebenoyan (1991)1979-1986</b>		138 USA	The market model estimated over - 136 to -16 days.	N.A.	Zero Return	N.A.	Higher Returns are associated with higher management ownership and ownership concentration
<b>Cornett and De (1991)1982-1986</b>		37 targets and 59 bidders from 152 deals. USA	Event study methodology based on the market model estimated over +16 to +75 days.	Positive	Positive	Positive	The presence of more potential acquirers does not reduce the acquirer returns. Deals settled in a mis of cash and equity earn higher returns than deals settled in equity followed by cash deals. But returns are not significantly different from one another

**Continued Table (3.1).**

<b>Baradwaj, Fraser and Furtado (1992)1981-1987</b>	108 USA	The market model estimated over – 60 to -11 days and +11 to +60 days.	N.A.	Negative	N.A.	Acquirers in interstate and intrastate deals earn similar returns
<b>Cornett and Tehranian (1992)1982-1987</b>	30 USA	Operating performance and Event study. The market model estimated over –136 to -16 days.	Positive	Negative	Positive	Similar returns for Inter and intrastate deals
<b>Steven Pilloff (1994)1982-1991</b>	48 USA	Operating performance and Event study methodology based on the market model estimated over –150 to -21 days. Buy and Hold method is used	N.A.	N.A.	Zero gain	Weighted average gains are positively related to the overlap between the merging parties, and the difference in total expenses but negatively related to the target's premerger personnel expenses and non-interest costs.
<b>Houston and Ryngaert (1994)1985-1991</b>	153 deals (22 were not completed) USA	The market model estimated over – 230 to –31 days. Using Buy and Hold return method	Positive	Negative	Zero gain	Bidding banks are more profitable than Target banks. Deals return is positively related to the acquirer pre merger operating performance. Deals with higher market overlap, i.e. greater potential for cost savings are viewed more positively by the market. The deal return is related to the financing used.
<b>Madura and Wiant (1994)1983-1987</b>	152 USA	Two-factor model estimated over – 62 to -3 months.	N.A.	Negative	N.A.	Returns were higher for intrastate acquisitions, acquisitions by relatively Low-growth banks, and acquisitions by relatively low-performance banks
<b>Hao Zhang (1995)1980-1990</b>	107 USA	Mean-adjusted return model.	Positive	Positive	Positive	Wealth gain is driven by relative size Acquirer to Target, Diversification (interstate acquisitions).
<b>Thomas Siems (1996)1995</b>	24 Megamergers USA	The market model using daily returns.	Positive	Negative	N.A.	Acquirer and target shareholders in mergers with higher office overlap earned higher returns than others. No support of the Diversification and the market power hypothesis, (similar returns for acquirers in deals with great market concentration and low market concentration). Evidence of the manager-utility-maximisation, and hubris hypotheses.
<b>Kwan and Eisenbeis (1999)1989-1996</b>	94 USA	The market model estimated over – 300 to -30 days.	N.A.	N.A.	Positive in (-1,0) window only	N.A.
<b>Cybo-Ottone and Murgia (1999)1988-1997</b>	54 European Mergers. Europe	The market model estimated over – 270 to -21 days.	Positive	Positive	Positive	Higher returns for Bancassurance deals, national deals, and merger deals

### **3.3 Sample design and Data Sources.**

The first step we performed was to look at a set of merger and acquisition transactions that were announced in the European financial services industry, which is taken to include the European Union and in addition Switzerland and Norway. Our main data source was the SDC Platinum CD, which provides access to Securities Data Company's online databases of financial transactions such as: Global New Issues, Mergers and Acquisitions and Corporate Governance.

We searched all the deals in the database between Jan 1987 and Dec 1999, where the acquirer is a publicly listed financial institution in the EU, Switzerland or Norway. The initial sample consisted of 2359 transactions, but when we restricted the sample to transactions where there was transfer of control as a result of the deal, the number dropped to 882 transactions, 238 of which had a publicly listed target firm as required for the study. Finally for completed deals, we ended up with 89 targets and 89 acquirers from 102 deals for which the stock return data were available.

In order to get at this final number of targets and acquirers, we also followed a very strict refinement strategy which aimed to ensure that the event we are examining, M&A, is the main event in the period studied for each transaction, that is, acquirers involved in another M&A deals within 6 months around our event date were excluded. Targets which received more than one offer within the same period, 6 months, were excluded. In sum we insured that the event dates were clean events.

For every transaction we collected the following information:

- The announcement date of the deal and the effective date.
- The value of the deal.
- The percentage of shares owned by the acquirer before, during and after the transaction.
- The form of the deal, whether it was a merger or a takeover deal<sup>25</sup>.
- The consideration offered, cash, equity or other...

We performed a consistency check on the announcement day of the merger using The Financial Times and Reuters databases. Therefore we are confident that the announcement date reported by SDC Platinum is the exact date when the information about the deal was first announced to the public.

Stock price and market value data for the sample banks and firms were collected from the Datastream database. The accounting data were collected from three main sources, the FitchIbca Bank Scope CD, the annual reports available on Laser D and the Datastream database.

In Table (3.2) we provide a summary statistics for the total sample of 102 deals. We notice that the deals are almost evenly distributed between merger and acquisition deals, however the number of cross border deals is not significant compared to the national deals. Moreover, most of the deals (71%) are among commercial banks, which could be seeking to exploit economies of scale and synergistic gains based on closure of overlapping branches (89% are national deals), while the rest is cross-product deals, where the partners could be planning to exploit economies of scope and

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<sup>25</sup> The form of the deal is clearly stated in the SDC Platinum database, moreover, the synopsis of each deal states details of the negotiation and offer process.

diversify their product portfolio. Another remarkable point is the high percentage of deals settled in cash as compared to equity settled deals. This might be due to having a good percentage of acquisition deals (52%), 5 deals of which are settled by equity exchange offers while the majority of the rest are settled in cash, and 10 deals are settled in a combination of cash, equity and loan notes. In Panel B of the table we report the geographical distribution of the deals in our sample and notice that France, Italy, and UK stand at the top of the league followed by Switzerland and Norway.

In Tables (3.3) and (3.4) we provide descriptive statistics for the sample of matched targets and acquirers in 76 deals completed between 1987 and 1999. We notice that the average size of target institution relative to the combined institution (table 3.3) is large enough, almost 29%, to constitute a strategic investment decision by the management of the acquiring institution. Moreover, the percentage of shares acquired during these deals is 79% on average for the total period. These two latter observations imply that these mergers are of a significant size to affect the performance of the acquiring institutions and therefore to stimulate the stock market to react when they are announced.

Compared to Cybo-Ottone and Murgia (2000) our sample excludes all uncompleted and withdrawn deals. Moreover we are covering a larger sample in a longer period, and most importantly, Cybo-Ottone and Murgia (2000) did not examine the effect of the method of payment. The final point is an important issue, which has received much attention in the M&A literature for the non-financial services industry worldwide and for the financial services industry in the USA, but little attention in the European context.

**TABLE (3.2): Sample Statistics for 102 M&As Deals.**

The table provides statistics for 102 M&As deals in the European Financial Services industry between 1987 and 1999. The deals were identified from the SDC Platinum Database (Securities Data Company).

**Panel A.**

Year	Number of the Deals	Mergers	Acquisitions	National	Cross-Border	Bank to Bank	Cross-product	Cash Settlement	Equity	Mixed	Not Disclosed Settlement
1987	1	0	1	1	0	1	0	1	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0
1989	6	3	3	5	1	4	2	3	1	1	1
1990	6	4	2	4	2	4	2	2	1	0	3
1991	7	3	4	6	1	4	3	2	2	0	3
1992	6	3	3	5	1	5	1	2	2	2	0
1993	6	3	3	6	0	3	3	2	1	1	2
1994	12	5	7	12	0	11	1	6	1	3	2
1995	17	6	11	15	2	13	4	11	2	2	2
1996	9	3	6	9	0	3	6	4	2	2	1
1997	16	11	5	14	2	13	3	5	3	5	3
1998	10	6	4	7	3	7	3	4	5	0	1
1999	6	2	4	6	0	4	2	3	3	0	0
<b>Full Sample</b>	<b>102</b>	<b>49</b>	<b>53</b>	<b>90</b>	<b>12</b>	<b>72</b>	<b>30</b>	<b>45</b>	<b>23</b>	<b>16</b>	<b>18</b>



TABLE (3.2) Panel B. Partition of 102 Deals by Country.

	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Norway	Portugal	Spain	Sweden	Switzerland	UK
Target	2	4	4	3	18	2	2	1	15	0	1	9	4	6	6	10	15
Acquirer	2	4	7	1	18	4	2	2	15	2	0	7	4	6	7	9	12

TABLE (3.3): Descriptive Data by Deal Announcement Date.

The table present descriptive statistics for MV of equity, Relative size, Deal value, and the percentage of shares acquired. The first three columns cover 76 matched targets and acquirers in M&As deals in the European Financial Services industry between 1989 and 1999, while the rest of the table covers all the deals included in the sample.

Year	Mean total MV of Equity in Millions of EURO		Mean Relative size of MV of equity.	Mean Value of the Deal in Millions of USD	Average % of shares Acquired
	Acquirer	Target			
1989	1,451.27	196.47	42%	764	78%
1990	1,565.56	398.65	17%	252	83%
1991	4,249.16	597.19	12%	324	85%
1992	3,260.34	1,337.06	29%	1041	81%
1993	726.31	205.86	38%	204	79%
1994	2,085.38	1,107.42	36%	470	92%
1995	2,543.97	1,163.78	22%	1308	73%
1996	4,629.53	1,107.21	30%	932	77%
1997	4,876.45	2,784.24	30%	2787	77%
1998	4,912.45	2,971.30	33%	2122	74%
1999	7,496.67	4,680.05	31%	4457	76%
Full Sample	3,759.33	1,807.24	29%	1644	79%

**TABLE (3.4): Descriptive Statistics for 76 Matched Merger Partners.**

The table provides statistics for 76 matched targets and acquirers in M&As deals in the European Financial Services industry between 1987 and 1999. (Figures are in Million Euros)

<b>Target</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Deviation</b>
<b>MV of Equity</b>	0.39	18,476.34	1,543.84	224.12	3,212.80
<b>Total Assets</b>	82.89	397,764.51	29,745.80	6,592.99	67,215.94
<b>Total Deposits</b>	1.47	158,907.03	21,608.51	4,194.27	39,644.77
<b>Total Customer Loans</b>	7.68	284,363.08	17,151.40	3,145.34	41,808.38
<b>Acquirer</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Deviation</b>
<b>MV of Equity</b>	16.43	21,029.91	3,559.85	2,101.19	4,313.00
<b>Total Assets</b>	56.16	324,825.25	83,018.31	60,782.34	84,312.26
<b>Total Deposits</b>	114.16	226,058.48	57,809.25	42,845.13	56,141.68
<b>Total Customer Loans</b>	94.65	157,932.32	42,094.50	31,766.65	40,854.61

### 3.4 The Methodology.

#### The event study<sup>26</sup>.

The rationale behind the use of an event study is to measure the effect on share price of an “event” (announcement of a merger proposal, share repurchase, and so on). In other words the aim is to assess the extent to which share price behaviour around the announcement of an event has been beyond expectation i.e. abnormal. The research involving abnormal returns provides a direct test of the efficient market hypothesis<sup>27</sup>. In principle nonzero abnormal returns which persist over time after the announcement of an event violates the hypothesis that security prices adjust quickly to fully reflect new information, unless new information concerning the companies is continuing to be received by the market.

However the security price performance in response to an event is considered abnormal in comparison to the expected return had the event not happened. There are several approaches in the literature to estimating what normal returns<sup>28</sup> would have been in the absence of an event. No matter what model is used, the measurement of

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<sup>26</sup> Event studies have a long history, which dates back till the early thirties, e.g. Dolley (1933) examined the price effect of stock splits. The level of sophistication of event studies increased with time and other researchers used the event study afterwards those included Myers and Bakay (1948), Barker (1956, 1957, 1958), and Ashley (1962). The improvements included removing general stock market price movements and separating out confounding events. Ball and Brown (1968) and Fama et al., (1969) introduced the methodology that is essentially the same as that is in use today.

<sup>27</sup> An efficient market is defined as one where a share price fully reflects all available information. The efficiency in this context is that of informational efficiency. Fama (1970) distinguishes three forms of informational efficiency: (1) weak form, where prices fully reflect information regarding the past sequence of prices (2) semi-strong-form, where prices fully reflect all publicly available information such as announcement of financial statements data, and (3) strong form efficiency, where prices fully reflect all information, including inside information.

<sup>28</sup> The share return can be calculated in two ways: discrete and logarithmic.

The discrete return is  $(P_{it} + D_{it} - P_{it-1})/P_{it-1}$ .

The Logarithmic return is  $\text{Log} [(P_{it} + D_{it})/P_{it-1}]$ .

Where  $P_{it}$  is the price of a security  $i$  at the end of period  $t$ ,  $D_{it}$  is the dividends paid during period  $t$ , and  $P_{it-1}$  is the price of security  $i$  at the end of period  $t-1$ , adjusted for any capital change (Strong, 1992).

shareholder returns (the abnormal return) as a result of the merger announcement for example is defined as the difference between the actual return and the expected return generated by one of the following models<sup>29</sup>.

1) The Market Adjusted Return Model: is also referred to as the Index Model (Armitage, 1995) and is based on the assumption that the expected return for any security equals to the expected market return in the same period. Expected returns, therefore, are constant across securities but not across time. Studies that used this model include Latané and Jones (1979), Dennis and McConnell (1986) and Lakonishok and Vermaelen (1990).

2) The Mean Adjusted Return Model: assumes that the expected return is the average return earned by this security during a certain estimation period. Other researchers used this model such as Masulis (1980).

3) The Capital Asset Pricing Model or the Market and Risk Adjusted Returns Model: this model<sup>30</sup> sets:  $E[R_i] = R_f + \beta_i(E[R_m] - R_f)$ . Where  $E[R_i]$  is the expected return of security  $i$ ,  $R_f$  is the risk-free rate of interest,  $E[R_m]$  is the expected return on the market index, and  $\beta_i$  is the systematic risk of a security  $i$  relative to the market index<sup>31</sup>.

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<sup>29</sup> Many papers have analysed the use of an event study methodology, the statistical tests used, and the weaknesses and strengths of different approaches used, these included Strong (1992), Armitage (1995), MacKinlay (1997).

<sup>30</sup> The CAPM is due to Sharpe (1964) and Lintner (1965).

<sup>31</sup> The Fama-MacBeth Model: is another variant of the CAPM developed by Fama and MacBeth (1973) and is given by:  $ER_{it} = \alpha_{1t} + \alpha_{2t}\beta_{it}$

4) The Matched/Control Portfolio benchmark: is another variant of the CAPM, under this model the sample securities subject to analysis (calculation of abnormal returns) are formed into a portfolio. Another control portfolio is formed and matched based on systematic risk. The portfolios are weighted to have the same systematic risk beta, often constrained to unity (Strong, 1992). The abnormal return is the difference between the returns on the sample portfolio and the control portfolio.

5) The Market Model<sup>32</sup>: is probably the most popular benchmark employed in event studies the return generating process for stock  $i$  during time  $t$  is given by:

$$r_{it} = \alpha_i + \beta_i r_{mt} + \varepsilon_{it}$$

Where  $r_{it}$  = the return for security  $i$  at time  $t$ , in the absence of any event,  $r_{mt}$  = return on the market, at time  $t$ , which is the benchmark against which the return for any security  $i$  will be compared.

$\alpha_i$  and  $\beta_i$ , are the market model parameters, and  $\varepsilon_{it}$  is a statistical error term where  $E(\varepsilon_{it}) = 0$ ,  $\text{Var}(\varepsilon_{it})$  is constant, and  $E(\varepsilon_{it}, \varepsilon_{i,t-j}) = 0 \forall j$ . OLS (ordinary least square) regression using days in the estimation or clean event period will generate estimates

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Where  $\beta_{it}$  is the beta defined in the CAPM above of share  $i$ ,  $\alpha_{1t}$  and  $\alpha_{2t}$  are cross-sectional regression coefficients for time  $t$  of share returns against beta during an estimation period. In this model  $\alpha_{1t}$  is interpreted as the return on a zero-beta portfolio.

<sup>32</sup> There have been a number of simulation studies of the various event study methodologies. The most influential of these have been a study by Brown and Warner (1980) on monthly data, and articles by Brown and Warner (1985), Dyckman et al., (1984) and Jain (1986), all extending the original Brown and Warner (1980) study to daily data. The conclusion of BW (1980) was...*a simple methodology based on the market model performs well under a wide variety of conditions*. In addition both Brown and Warner (1985) and Dyckman et al., (1984) find daily data result in more powerful test statistics than are found for the monthly data simulations in Brown and Warner (1980). In addition Morse (1984) suggests that a shorter measurement interval is more likely to detect information effects unless there is uncertainty over the exact announcement date.

of  $\alpha_i$  and  $\beta_i$ . The estimate of  $\beta_i$  will be the same as that of the CAPM  $\beta$  if either  $\beta = 1$  or the risk-free rate does not change over the estimation period.

The predicted return for a firm for a day in the event period, is the return given by the market model on that day using these estimates. Therefore, the abnormal return is given by the actual return on day  $t$  less the predicted return on the same day.

We use the market model to perform a standard event study, in order to measure the abnormal stock return.

We used two different benchmarks, as in Cybo-Ottone and Murgia (2000), to estimate regression parameters, that is, the Datastream General Market index and the Datastream Bank Sector index for the bidder and target's country. We also converted all market returns and security returns to the Euro currency using daily time series exchange rates for the securities, which are not reported in Euro in Datastream. This procedure is done in order to maintain homogeneity when comparing returns across all the securities of the banks and firms used in the sample. We estimated the market model parameters over  $-210$  to day  $-21$  before the event day, and estimated the abnormal return between  $-20$  and  $+30$  days around the event day.

The individual daily abnormal returns,  $R_{it}$ , are then averaged across banks and firms in the sample to calculate the daily average abnormal returns. That is:

$$AR = \frac{1}{N} \sum_{i=1}^N R_{it}$$

Where  $i = 1, \dots, N$  is the number of banks and firms in our sample. Additionally, we then aggregated the daily average abnormal returns, across several event windows, to arrive at the Cumulative Average Abnormal Returns, CAR.

We have also re-estimated the market model parameters using the Scholes-Williams (1977) procedure in order to correct for the estimation error in beta due to possible non-synchronous trading. In general many securities listed on organised exchanges are traded only infrequently, with few securities so actively traded that prices are recorded almost continuously<sup>33</sup>. One of the results of the infrequent trading of some shares is that reported returns reflect dated transactions and therefore these returns are non-synchronous across securities, the accurate calculation of returns over any fixed sequence of periods becomes virtually impossible. Consequently, this introduces into the market model the econometric problem of errors in variables, which result in biased and inconsistent beta estimates<sup>34</sup>. With daily data this problem appears particularly severe.

The Scholes-Williams beta estimator assumes that although trades are non-synchronous, a transaction takes place in every measurement interval; in addition it is assumed that price-adjustment delays arise only through non-synchronous trading so that an observed transaction price is the true price at the time of the transaction. According to Scholes and Williams (1977) the estimator of beta is given by:

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<sup>33</sup> Fama (1965) and Fisher (1966) first recognised the non-trading of securities as a potentially serious empirical problem.

<sup>34</sup> A number of methods for correcting for this bias have been proposed in the literature (Scholes and Williams, 1977; Dimson, 1979; and Cohen et al., 1983)

$$\hat{\beta}_{sw} = \frac{\hat{\beta}^{-1} + \hat{\beta}^0 + \hat{\beta}^{+1}}{1 + 2\hat{\rho}_m}$$

Where  $\hat{\beta}^n$  is an estimator of the slope coefficient in a simple regression of the return on the security in period  $t$  against the return on the market in period  $t+n$ .

$\hat{\rho}_m$  is an estimate of the first order serial correlation coefficient of the market index.

In order to measure the outcome of merger on the combined financial institution we compute the weighted-average abnormal returns, for both parties target and bidder in every deal. The weights we used, are the market value of equity, one month before the announcement of the deal. In order to examine how the results might differ we also substituted the market value of equity by the total assets value at the end of the year before the announcement year of the deal.

### **Statistical tests used.**

The statistical significance of cumulative abnormal returns is tested using the Dodd and Warner (1983) method. See Appendix A for the detailed calculation.

However, when we partition the sample into sub-samples according to some criteria such as: Merger vs. Acquisition, National vs. Cross border and so on... we constructed table (3.21) summarising the findings from these sub-samples in the pre-merger announcement event window (-10,0) and used non-parametric tests, e.g. the Wilcoxon Signed-Rank tests and the Mann-Whitney tests (Baradwaj et al., 1990 used both tests). The rational for using these non-parametric tests is that in case of small samples z-test and t-tests may not be accurate in testing for significance especially that small samples may be grossly non-normally distributed. We use the Mann-



Whitney<sup>35</sup> test in order to test for significance of the difference of abnormal returns for every two sub-samples.

### **3.5 Market Reaction to Merger Announcement.**

Table (3.5) shows the value weighted cumulative abnormal returns for 76 deals calculated on different event windows extending from 20 days before the announcement of the merger until 30 days after the announcement, the weights being the market value of equity of both parties, target and acquirer, one month before the announcement month. The CAR for the total sample of 76 merger deals two days around the announcement of the merger, (-1,1) is 0.49 % which is significant at the 5% level. The percentage of deals with positive CAR in the sample is 62%, shown in the last column of the table, which is above the percentage of having positive CAR due to chance alone i.e. 50%. The CARs in the other event windows are all significant except the pre-merger event window of (-20,0) days. The majority of this return is achieved in the first two days after the announcement of the merger and then it starts to drop gradually afterwards until it reaches a small and significant negative CAR of – 0.23% 30 days after the merger announcement date. Comparing our results to other studies in the area of bank merger in the USA we find that Houston and Ryngaert (1994) reported a value weighted CAR of 0.46 %, in the (-4,0) event window, but this is insignificant for the total sample of 153 bank merger between 1985 and 1991. Our closest comparable window is the (-5,0) were the CAR was almost the same at 0.45%

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<sup>35</sup> “The test focuses on the median as the measure of location or central tendency. When a population is symmetrical, the median and the mean are equal. Therefore, when two sampled populations are symmetrical, conclusions about their medians based on the Mann-Whitney test also apply to their means” Daniel, W and J. Terrell, Business Statistics for management and economics, seventh edition. Houghton Mifflin Co. Boston, 1995, Page 726.

but highly significant for our total sample. Moreover, other studies with close results to ours are Pilloff (1996) where he reports (-5,0) CAR of 0.6% and Kwan and Eisenbeis (1999) where they report pre-merger CAR of 0.77% during (-1,0), and 0.56% in the (-5,0) window. Our comparable CARs are 0.34% and 0.45% respectively, both figures being significant at the 1% level. Kwan and Eisenbeis (1999)'s CAR for the (-20,0) event window was 0.28%, our comparable figure being 0.36%. Both are not significantly different from zero.

On the other hand Zhang (1995) reported a positive CAR of 7% for the (-2,2) event window while our comparable window shows a CAR of 0.48% which is significant at the 1% level. Pilloff (1996) shows a (-10,0) CAR of 1.44% which is significant at the 10% level while in our study the CAR is 0.27% which is significant at the 1% level. In sum the weighted average CAR for both targets and acquirers in the pre-merger period implies that there is a leakage of information to the market about the merger at least ten days before the announcement (see Table 3.5 for the details about the CARs in different event windows and for tests of significance).

One paper of particular interest to our research is Cybo-Ottone and Murgia (2000) who examined the mergers in the European financial services industry between 1988 and 1997 for deals above USD 100 Million in value. The CAR reported by Cybo-Ottone and Murgia (2000) in the different event windows that are examined are much higher than those we report, the lowest return they report being 2.65% during (-1,0) while our highest return is 0.49% in the (-2,2) event window, both figures being significant at the 1% level. Looking at the figures they report using the Market value of Equity as the weight to measure the CAR of target and acquirer banks, we notice

that the abnormal returns start to drop in day +1 after the merger announcement and continue this trend until day +20. While the highest return they report is 4.49% during (-20,0), our comparable figure for this event window is 0.36% but this is not significantly different from zero.

Since our study is not restricted to large deals as was Cybo-Ottone and Murgia (2000), we tried to construct a similar scenario by examining the CAR for deals larger than USD 100 Million in value. Moreover, we tried to match their sample and examined the CAR for another sub-sample, which is restricted to large deals completed between 1988 and 1997, the same period examined by Cybo-Ottone and Murgia (2000). We report the results we obtained in table (3.6) for two sub-samples in Panel A and Panel B, yet the highest return, for the total sample of large deals, Table (3.6) Panel A, that we obtained was 0.83% during the (-20,0) event window, significant at the 10% level while the (-2,2) CAR was 0.81% significant at the 1% level. While for the sub-sample which matches theirs, shown in table (3.6) Panel B, our highest reported CAR was just under 1.2% in the (-20,0) event window. Further down, we perform a bivariate analysis which shows that the highest return we obtain is for deals settled in a mix of cash, equity and loan notes, this return being almost 2% in the (0,2) event window (significant at the 1% level). In sum our results, in contrast to those reported by Cybo-Ottone and Murgia (2000), seem to be in line with previous findings in the USA literature of bank mergers and acquisitions and do not point to exceptionally high CARs in the European context.

**TABLE 3.5: Weighted Average Cumulative Abnormal Returns.**

The table presents results of the event study for a sample of 76 deals where acquirers and targets were simultaneously listed. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Value weighted ARs are computed using the market value of equity at the end of the month before the announcement date. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method. In Panel B of the table we present the results after we adjust for non-synchronous trading using Scholes-Williams (1977) procedure.

<b>Event Window</b>	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>
CAR (-1,+1)	0.0049	0.0163	2.2403	0.0251	62%
CAR (-2,+2)	0.0049	0.0240	2.5788	0.0099	64%
CAR (-5,+5)	0.0026	0.0264	-5.6311	0.0000	62%
CAR (-10,+10)	0.0027	0.0302	-8.6726	0.0000	62%
CAR (-20,+20)	0.0022	0.0370	-4.8664	0.0000	62%
CAR (-20,+30)	-0.0014	0.0427	-5.1869	0.0000	55%
CAR (-1,0)	0.0034	0.0129	8.9646	0.0000	58%
CAR (-2,0)	0.0033	0.0139	7.2405	0.0000	62%
CAR (-5,0)	0.0045	0.0161	5.8967	0.0000	61%
CAR (-10,0)	0.0027	0.0194	3.5664	0.0004	51%
CAR (-20,0)	0.0036	0.0243	1.1080	0.2679	58%
CAR (0,+1)	0.0041	0.0148	1.8874	0.0591	63%
CAR (0,+2)	0.0042	0.0221	2.7091	0.0067	62%
CAR (0,+5)	0.0007	0.0241	-8.8400	0.0000	53%
CAR (0,+10)	0.0026	0.0270	-12.0919	0.0000	57%
CAR (0,+20)	0.0013	0.0297	-5.4054	0.0000	61%
CAR (0,+30)	-0.0023	0.0352	-5.5054	0.0000	50%

**TABLE 3.5: Panel B. Weighted Average Cumulative Abnormal Returns.**

The table presents results of the event study for a sample of 76 deals where acquirers and targets were simultaneously listed. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Value weighted ARs are computed using the market value of equity at the end of the month before the announcement date. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method. We report the results after adjusting for non-synchronous trading.

**Panel B. Adjusted for non-synchronous trading (Weight: Market Value of Equity).**

<b>Event Window</b>	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>
CAR (-1,+1)	0.0045	0.0155	1.9682	0.049051	62%
CAR (-2,+2)	0.0045	0.0228	2.4317	0.015029	64%
CAR (-5,+5)	0.0024	0.0251	-5.6874	1.29E-08	62%
CAR (-10,+10)	0.0023	0.0287	-8.7280	0	62%
CAR (-20,+20)	0.0019	0.0351	-4.9181	8.75E-07	62%
CAR (-20,+30)	-0.0014	0.0405	-5.1751	2.28E-07	55%
CAR (-1,0)	0.0033	0.0123	8.9517	0	58%
CAR (-2,0)	0.0032	0.0132	7.2246	5.06E-13	62%
CAR (-5,0)	0.0044	0.0153	5.8901	3.87E-09	61%
CAR (-10,0)	0.0025	0.0185	3.5791	0.000345	51%
CAR (-20,0)	0.0033	0.0231	1.1343	0.256663	58%
CAR (0,+1)	0.0036	0.0141	1.4903	0.136157	63%
CAR (0,+2)	0.0037	0.0210	2.4724	0.01342	62%
CAR (0,+5)	0.0005	0.0229	-8.9538	0	53%
CAR (0,+10)	0.0022	0.0257	-12.2139	0	57%
CAR (0,+20)	0.0010	0.0282	-5.5277	3.25E-08	61%
CAR (0,+30)	-0.0023	0.0334	-5.5313	3.19E-08	50%

**TABLE 3.5 Panel C: Weighted Average Cumulative Abnormal Returns.**

The table presents results of the event study for a sample of 76 deals where acquirers and targets were simultaneously listed. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Value weighted ARs are computed using the Total Assets Value at the end of the year before the announcement date. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

**Panel C Weight: Book Value of Total Assets.**

<b>Event Window</b>	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>
<b>CAR (-1,+1)</b>	0.0041	0.0185	2.4820	0.0131	62%
<b>CAR (-2,+2)</b>	0.0034	0.0266	2.5641	0.0103	61%
<b>CAR (-5,+5)</b>	0.0013	0.0292	-2.8630	0.0042	61%
<b>CAR (-10,+10)</b>	0.0025	0.0336	-4.2604	0.0000	55%
<b>CAR (-20,+20)</b>	0.0021	0.0406	-2.2056	0.0274	59%
<b>CAR (-20,+30)</b>	-0.0014	0.0458	-2.8564	0.0043	54%
<b>CAR (-1,0)</b>	0.0028	0.0130	6.2921	0.0000	55%
<b>CAR (-2,0)</b>	0.0026	0.0136	5.1371	0.0000	62%
<b>CAR (-5,0)</b>	0.0039	0.0157	4.3529	0.0000	58%
<b>CAR (-10,0)</b>	0.0026	0.0195	2.6647	0.0077	46%
<b>CAR (-20,0)</b>	0.0031	0.0253	1.0729	0.2833	53%
<b>CAR (0,+1)</b>	0.0032	0.0166	2.1345	0.0328	58%
<b>CAR (0,+2)</b>	0.0026	0.0249	2.5715	0.0101	59%
<b>CAR (0,+5)</b>	-0.0007	0.0272	-5.1194	0.0000	53%
<b>CAR (0,+10)</b>	0.0019	0.0305	-6.2543	0.0000	55%
<b>CAR (0,+20)</b>	0.0010	0.0333	-2.4924	0.0127	59%
<b>CAR (0,+30)</b>	-0.0026	0.0380	-3.1785	0.0015	50%

**TABLE 3.6: Weighted Average Cumulative Abnormal Returns. (Large Deals)**

The table presents results of the event study for a sample of 52 deals, where the deal value is above USD 100 million and the acquirers and targets were simultaneously listed. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Value weighted ARs are computed using the market value of equity at the end of the month before the announcement date. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method. Panel B of this table restricts the analysis until year 1997.

<b>Panel A</b>	<b>Event Window</b>	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>
	CAR (-1,+1)	0.0081	0.0166	3.3137	0.0009	65%
	CAR (-2,+2)	0.0081	0.0268	3.7164	0.0002	69%
	CAR (-5,+5)	0.0054	0.0288	-6.4492	0.0000	65%
	CAR (-10,+10)	0.0039	0.0327	-10.7433	0.0000	64%
	CAR (-20,+20)	0.0063	0.0382	-5.5210	0.0000	62%
	CAR (-20,+30)	0.0035	0.0430	-5.6064	0.0000	62%
	CAR (-1,0)	0.0052	0.0136	10.9126	0.0000	62%
	CAR (-2,0)	0.0052	0.0147	8.8480	0.0000	67%
	CAR (-5,0)	0.0061	0.0171	6.5134	0.0000	65%
	CAR (-10,0)	0.0043	0.0199	4.0170	0.0001	55%
	CAR (-20,0)	0.0083	0.0246	1.8569	0.0633	62%
	CAR (0,+1)	0.0066	0.0153	2.7614	0.0058	69%
	CAR (0,+2)	0.0068	0.0248	3.8010	0.0001	67%
	CAR (0,+5)	0.0031	0.0255	-9.6941	0.0000	58%
	CAR (0,+10)	0.0034	0.0289	-14.7609	0.0000	60%
	CAR (0,+20)	0.0018	0.0326	-6.6039	0.0000	64%
	CAR (0,+30)	-0.0010	0.0370	-6.2770	0.0000	47%

**TABLE 3.6 Panel B: Weighted Average Cumulative Abnormal Returns. (Large Deals between 1988 and 1997)**

The table presents results of the event study for a sample of 36 deals between 1988 and 1997, where the deal value is above USD 100 million and the acquirers and targets were simultaneously listed. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Value weighted ARs are computed using the market value of equity at the end of the month before the announcement date. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

<b>Event Window</b>	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>
CAR (-1,+1)	0.0069	0.0172	1.2642	0.2062	61%
CAR (-2,+2)	0.0082	0.0292	2.0712	0.0383	63%
CAR (-5,+5)	0.0051	0.0308	-9.5440	0.0000	63%
CAR (-10,+10)	0.0043	0.0350	-14.1267	0.0000	61%
CAR (-20,+20)	0.0078	0.0412	-7.4198	0.0000	61%
CAR (-20,+30)	0.0041	0.0446	-7.3890	0.0000	59%
CAR (-1,0)	0.0062	0.0134	12.6173	0.0000	63%
CAR (-2,0)	0.0062	0.0146	10.3738	0.0000	71%
CAR (-5,0)	0.0070	0.0166	7.6940	0.0000	66%
CAR (-10,0)	0.0068	0.0198	5.4040	0.0000	56%
CAR (-20,0)	0.0117	0.0225	2.5394	0.0111	68%
CAR (0,+1)	0.0060	0.0160	0.8491	0.3958	63%
CAR (0,+2)	0.0073	0.0272	2.0312	0.0422	63%
CAR (0,+5)	0.0034	0.0276	-13.7357	0.0000	51%
CAR (0,+10)	0.0028	0.0313	-19.8409	0.0000	54%
CAR (0,+20)	0.0014	0.0356	-9.2288	0.0000	59%
CAR (0,+30)	-0.0023	0.0392	-8.5403	0.0000	39%



### 3.5.1 Returns to target firms shareholders.

Table (3.7) reports the results for the sample of target and acquiring banks and firms<sup>36</sup>. We report the CAR for 89 targets and 89 acquirers from 102 different deals.

The returns to targets are all significantly different from zero at the 1% level. The two days announcement period CAR, in the (-1,1) window, is 2.3%, while the highest return for targets is in the (-20,20) event window register a CAR of 4.4%. A very interesting finding is that the returns persist until 30 days after the merger announcement where the CAR was 2.8% in the (0,30), and 2.9% in the (0,20) event windows.

Our results are similar to the general findings of other studies in the field in terms of reporting significant positive returns to targets. The value of this return is very close to findings of some studies and lower than others in different event windows examined, thence a brief comparison follows. Cornett and Tehranian (1992)<sup>37</sup> report a two-day announcement period CAR of 8% for the total sample and 4.7% for interstate mergers, our comparative figure being 1.4%, however if we look at our two sub-samples of deals larger than USD 100 Million (see table 3.8), the comparative CARs are 2% and 3%. For the same event window, Zhang (1995) found 6.13% positive abnormal return while Baradwaj et al (1990) reports 17.29% and 10.92% for target banks in hostile and non-hostile takeover deals respectively. However in order to gain more insight by comparing our results to this study we split the sample into two sub-samples based on the legal aspect of the deal, merger vs. acquisition, in table (3.13).

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<sup>36</sup> We also report the pattern of changing CAR for target and acquiring institutions from -20 days to +30 days in Figures (3.1) and (3.2).

<sup>37</sup> Cornett and Tehranian (1992) study is restricted to deals larger than USD 100 Million.

The total CAR to target banks in acquisition deals<sup>38</sup> for our longest period, (-20,30) days, is just under 10% which is significant at the 1% level while the return reported by Baradwaj et al (1990) is 14.35% for the (-60,60) event window. On the other hand Houston and Ryngaert (1994) reported 14.77% CAR for the five days event window they examined for acquisition deals, where our result for the same window is almost 2.1% for acquisition deals as well. However, Cornett and De (1991) reported a two days announcement CAR of 8% for targets in interstate takeover bids while our figure for the same window is 3.5% for acquisition deals. Moreover, our result for the (-10,10) event window is 7% and for the (-20,20) window is 9.5%, these results being significant at the 1% level, while Cornett and De (1991) reported very close results of 8.7% and 9.6% in the (-10,10) and the (-15,15) event windows respectively, their results also being significant at the 1% and 10% level.

On the other hand Neely (1987) reported 17% return for the BHC (Bank Holding Company) target banks during the announcement week of the acquisition and a lower return of 7% for the individual bank target sub-sample. Our closest comparative windows are (-2,2) and (-5,5) days where the results are 4% and 5.5% respectively.

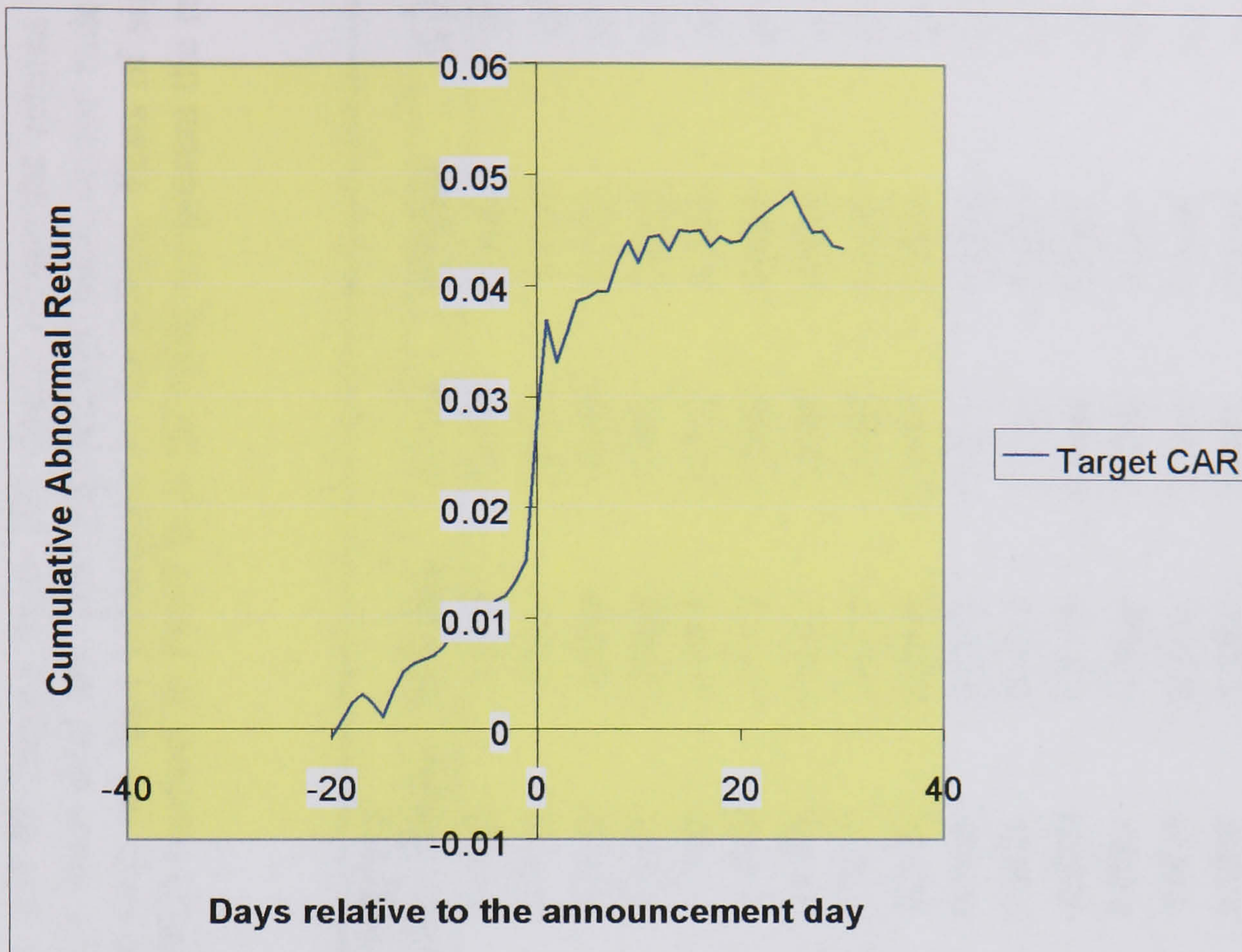
Comparing our results to those reported by Cybo-Ottone and Murgia (2000), we notice that the announcement period return they report for the target banks, (-1,1) days, is almost 12% while in our comparative sample for large deals the target bank return was almost 4.3% (Table 3.8 Panel B) and for the (-20,20) window was 7% while their reported figure for the same window was 14%.

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<sup>38</sup> Note that hostile takeovers are very rare in the banking industry and therefore we consider that our results for acquisition deals should best be compared to the returns in non-hostile takeover deals.

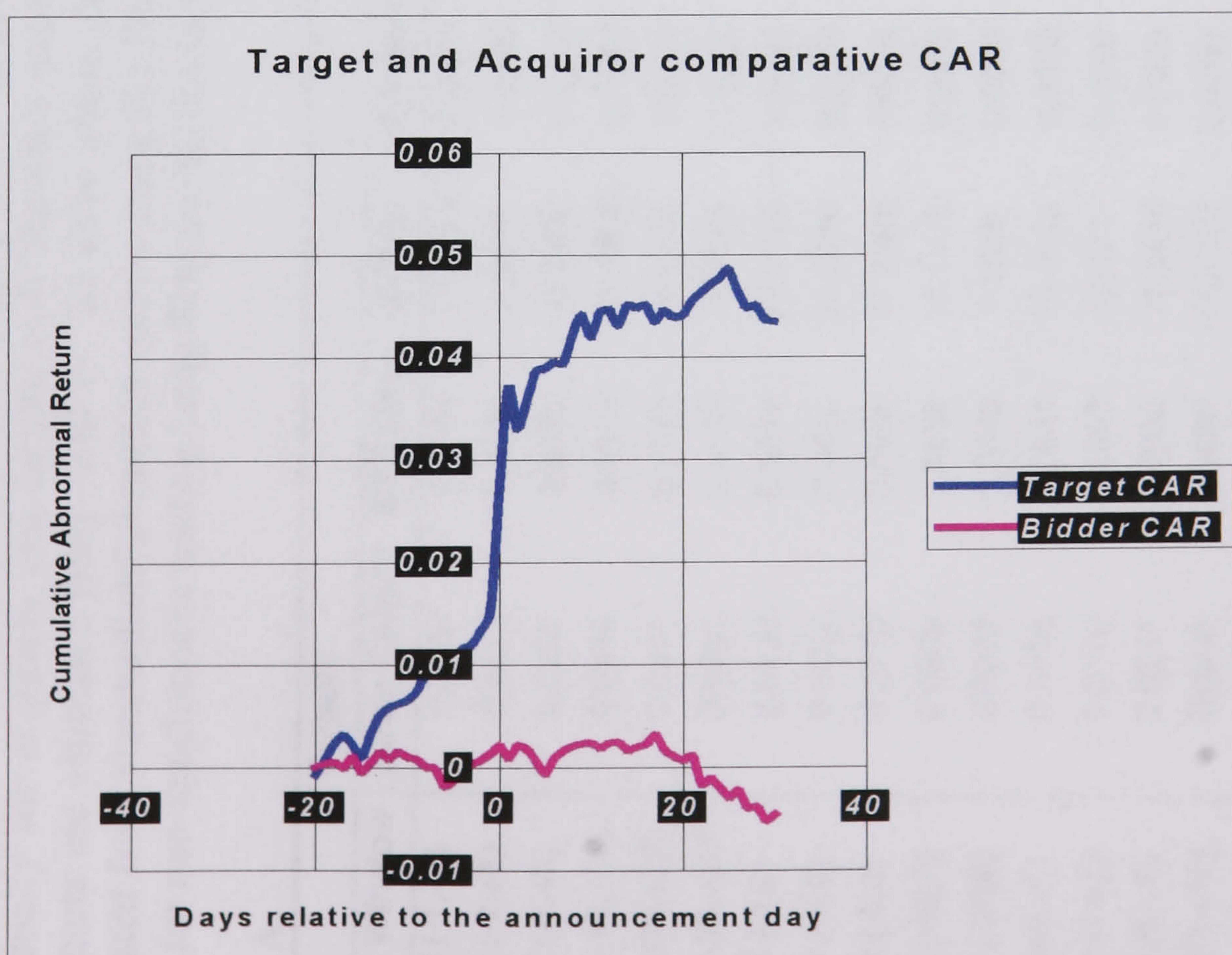
**Figure (3.1): Pattern of Target CAR.**

The figure shows Cumulative Abnormal Returns for targets between -20 and +30 days around the announcement day of the merger.



**Figure (3.2): Comparative CAR for both targets and acquirers.**

The Figure shows comparative CAR for targets and acquirers between -20 and +30 days around the announcement day of the merger.



**TABLE 3.7: Cumulative Abnormal Returns for targets and acquirers in the total sample.**

The table presents results of the event study for a sample of 89 acquirers and 89 targets from 102 deals. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from  $-210$  to  $-21$  days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method. In Panel B of the table we present the results after we adjust for non-synchronous trading using Scholes-Williams (1977) procedure.

Event Window	Targets				Acquirers					
	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Mean Return	STD Dev	Z-Test	P-Value	% Pos
CAR (-1,+1)	0.0235	0.0554	12.4424	0.0000	67%	0.0003	0.0192	1.1545	0.2483	46%
CAR (-2,+2)	0.0211	0.0722	8.2318	0.0000	66%	0.0018	0.0234	2.6010	0.0093	49%
CAR (-5,+5)	0.0287	0.0836	-9.7462	0.0000	67%	0.0012	0.0249	1.3466	0.1781	54%
CAR (-10,+10)	0.0358	0.0949	-18.3658	0.0000	69%	0.0008	0.0322	1.0472	0.2950	51%
CAR (-20,+20)	0.0441	0.1127	-8.4496	0.0000	69%	0.0008	0.0385	0.8762	0.3809	55%
CAR (-20,+30)	0.0435	0.1194	-7.0735	0.0000	63%	-0.0046	0.0475	-0.5165	0.6055	51%
CAR (-1,0)	0.0138	0.0444	28.3185	0.0000	57%	0.0013	0.0157	2.3187	0.0204	49%
CAR (-2,0)	0.0152	0.0450	24.0876	0.0000	63%	0.0017	0.0161	2.1095	0.0349	46%
CAR (-5,0)	0.0170	0.0458	17.7905	0.0000	60%	0.0038	0.0188	2.8457	0.0044	55%
CAR (-10,0)	0.0209	0.0532	14.1673	0.0000	67%	0.0006	0.0222	0.9610	0.3365	49%
CAR (-20,0)	0.0272	0.0646	7.3518	0.0000	61%	0.0021	0.0273	1.1791	0.2384	54%
CAR (0,+1)	0.0216	0.0544	13.4943	0.0000	68%	-0.0004	0.0178	0.4598	0.6456	49%
CAR (0,+2)	0.0179	0.0695	8.2371	0.0000	68%	0.0007	0.0229	2.3626	0.0181	52%
CAR (0,+5)	0.0237	0.0832	-15.6445	0.0000	68%	-0.0019	0.0233	-0.2345	0.8146	42%
CAR (0,+10)	0.0268	0.0889	-28.2122	0.0000	66%	0.0010	0.0269	1.0677	0.2857	48%
CAR (0,+20)	0.0289	0.0985	-10.9573	0.0000	61%	-0.0006	0.0291	0.4663	0.6410	46%
CAR (0,+30)	0.0282	0.1069	-8.3739	0.0000	62%	-0.0060	0.0390	-1.2864	0.1983	44%

**TABLE 3.7 Panel B: Cumulative Abnormal Returns for targets and acquirers adjusted for non-synchronous trading.**

In Panel B of the table we present the results after we adjust for non-synchronous trading using Scholes-Williams (1977) procedure. The table presents results of the event study for a sample of 89 acquirers and 89 targets from 102 deals. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method

Event Window	Targets					Acquirers				
	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Mean Return	STD Dev	Z-Test	P-Value	% Pos
CAR (-1,+1)	0.0233	0.0554	12.3217	0.0000	67%	0.0001	0.0192	0.9998	0.3174	46%
CAR (-2,+2)	0.0208	0.0722	8.1580	0.0000	66%	0.0017	0.0234	2.5101	0.0121	49%
CAR (-5,+5)	0.0285	0.0836	-9.8262	0.0000	67%	0.0014	0.0249	1.3863	0.1657	54%
CAR (-10,+10)	0.0353	0.0949	-18.4989	0.0000	69%	0.0008	0.0322	1.0317	0.3022	51%
CAR (-20,+20)	0.0442	0.1127	-8.4076	0.0000	69%	0.0001	0.0385	0.6959	0.4865	55%
CAR (-20,+30)	0.0434	0.1194	-7.0499	0.0000	63%	-0.0051	0.0475	-0.6070	0.5438	51%
CAR (-1,0)	0.0137	0.0444	28.2168	0.0000	57%	0.0014	0.0157	2.4095	0.0160	49%
CAR (-2,0)	0.0150	0.0450	23.9825	0.0000	63%	0.0018	0.0161	2.2403	0.0251	46%
CAR (-5,0)	0.0168	0.0458	17.6601	0.0000	60%	0.0040	0.0188	3.0205	0.0025	55%
CAR (-10,0)	0.0204	0.0532	13.9404	0.0000	67%	0.0008	0.0222	1.1067	0.2684	49%
CAR (-20,0)	0.0267	0.0646	7.2084	0.0000	61%	0.0020	0.0273	1.2430	0.2139	54%
CAR (0,+1)	0.0214	0.0544	13.3125	0.0000	68%	-0.0006	0.0178	0.1833	0.8545	49%
CAR (0,+2)	0.0177	0.0695	8.1362	0.0000	68%	0.0005	0.0229	2.1174	0.0342	52%
CAR (0,+5)	0.0235	0.0832	-15.7007	0.0000	68%	-0.0019	0.0233	-0.3534	0.7238	42%
CAR (0,+10)	0.0267	0.0889	-28.2269	0.0000	66%	0.0007	0.0269	0.9022	0.3669	48%
CAR (0,+20)	0.0293	0.0985	-10.7970	0.0000	61%	-0.0013	0.0291	0.1517	0.8794	46%
CAR (0,+30)	0.0285	0.1069	-8.2601	0.0000	62%	-0.0064	0.0390	-1.4541	0.1459	44%

**TABLE 3.7 Panel C: Cumulative Abnormal Returns for targets and acquirers using the Datastream general Market Index as the benchmark.**

Panel C of the table presents results of the event study for a sample of 89 acquirers and 89 targets from 102 deals. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM General Market Index. Regression parameters are estimated from  $-210$  to  $-21$  days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

Event Window	Targets					Acquirers				
	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Mean Return	STD Dev	Z-Test	P-Value	% Pos
CAR (-1,+1)	0.0262	0.0609	12.8572	0.0000	68%	0.0028	0.0211	4.9332	0.0000	47%
CAR (-2,+2)	0.0229	0.0794	8.9842	0.0000	67%	0.0043	0.0257	5.9128	0.0000	51%
CAR (-5,+5)	0.0298	0.0920	-9.9061	0.0000	68%	0.0043	0.0273	4.7454	0.0000	55%
CAR (-10,+10)	0.0373	0.1044	-18.2837	0.0000	71%	0.0069	0.0354	4.4752	0.0000	52%
CAR (-20,+20)	0.0454	0.1240	-7.5951	0.0000	71%	0.0067	0.0424	1.5800	0.1141	56%
CAR (-20,+30)	0.0466	0.1314	-5.9438	0.0000	65%	0.0045	0.0523	1.1159	0.2644	52%
CAR (-1,0)	0.0146	0.0488	27.7803	0.0000	58%	0.0020	0.0173	5.2801	0.0000	51%
CAR (-2,0)	0.0155	0.0495	24.3230	0.0000	65%	0.0021	0.0177	5.0661	0.0000	47%
CAR (-5,0)	0.0165	0.0504	17.7265	0.0000	62%	0.0050	0.0207	6.2644	0.0000	56%
CAR (-10,0)	0.0217	0.0585	15.1896	0.0000	68%	0.0032	0.0244	4.3050	0.0000	51%
CAR (-20,0)	0.0289	0.0710	9.0544	0.0000	63%	0.0073	0.0301	3.9937	0.0001	55%
CAR (0,+1)	0.0242	0.0598	14.7208	0.0000	69%	0.0028	0.0196	5.6372	0.0000	51%
CAR (0,+2)	0.0200	0.0765	9.1205	0.0000	69%	0.0042	0.0252	6.5480	0.0000	53%
CAR (0,+5)	0.0258	0.0915	-15.6928	0.0000	69%	0.0013	0.0257	2.9757	0.0029	43%
CAR (0,+10)	0.0281	0.0978	-29.0441	0.0000	67%	0.0057	0.0296	3.9573	0.0001	50%
CAR (0,+20)	0.0290	0.1084	-11.4102	0.0000	63%	0.0014	0.0320	-0.2814	0.7784	47%
CAR (0,+30)	0.0302	0.1175	-8.2803	0.0000	64%	-0.0008	0.0429	-0.6173	0.5370	45%

**TABLE 3.8: Cumulative Abnormal Returns for targets and Acquirers in Large Deals.**

Panel A of the table presents results of the event study for a sample of 55 acquirers and 51 targets from deals which value is above USD 100 Million. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from  $-210$  to  $-21$  days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

**Panel A**

Event Window	Targets N= 51					Acquirers N = 55				
	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Mean Return	STD Dev	Z-Test	P-Value	% Pos
CAR (-1,+1)	0.0393	0.0530	17.7379	0.0000	73%	0.0028	0.0212	-4.8112	0.0000	50%
CAR (-2,+2)	0.0454	0.0763	16.0704	0.0000	76%	0.0042	0.0265	-2.1352	0.0327	50%
CAR (-5,+5)	0.0444	0.0817	-12.6176	0.0000	69%	0.0030	0.0260	-23.7210	0.0000	60%
CAR (-10,+10)	0.0522	0.0933	-24.7479	0.0000	75%	0.0010	0.0338	-33.7564	0.0000	52%
CAR (-20,+20)	0.0645	0.1026	-10.6855	0.0000	75%	0.0031	0.0404	-19.0857	0.0000	58%
CAR (-20,+30)	0.0603	0.1029	-9.9011	0.0000	66%	0.0003	0.0476	-18.0620	0.0000	53%
CAR (-1,0)	0.0212	0.0451	35.7013	0.0000	64%	0.0036	0.0179	21.9541	0.0000	52%
CAR (-2,0)	0.0238	0.0455	30.1992	0.0000	73%	0.0032	0.0182	17.5312	0.0000	50%
CAR (-5,0)	0.0262	0.0456	21.6501	0.0000	68%	0.0051	0.0198	13.1642	0.0000	56%
CAR (-10,0)	0.0324	0.0536	17.3387	0.0000	73%	0.0026	0.0244	8.6036	0.0000	53%
CAR (-20,0)	0.0445	0.0668	9.6264	0.0000	68%	0.0053	0.0284	1.5227	0.1278	56%
CAR (0,+1)	0.0369	0.0522	19.9560	0.0000	76%	0.0011	0.0202	-7.7847	0.0000	52%
CAR (0,+2)	0.0405	0.0733	18.2537	0.0000	76%	0.0028	0.0265	-3.9073	0.0001	50%
CAR (0,+5)	0.0370	0.0781	-19.1432	0.0000	71%	-0.0002	0.0253	-33.6998	0.0000	45%
CAR (0,+10)	0.0386	0.0858	-37.0639	0.0000	69%	0.0002	0.0285	-46.6904	0.0000	50%
CAR (0,+20)	0.0388	0.0871	-14.0851	0.0000	68%	-0.0003	0.0320	-21.9994	0.0000	50%
CAR (0,+30)	0.0346	0.0892	-12.0037	0.0000	64%	-0.0031	0.0389	-19.3245	0.0000	45%

**TABLE 3.8 Panel B: Cumulative Abnormal Returns for targets and Acquirers in Large Deals between 1988 and 1997.**

Panel B of the table presents results of the event study for a sample of 41 acquirers and 38 targets from deals which value is above USD 100 Million and were completed until between 1988 and 1997. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

Event Window	Targets				Acquirers				
	Mean Return	STD Dev	Z-Test	P-Value	Mean Return	STD Dev	Z-Test	P-Value	% Pos
CAR (-1,+1)	0.0427	0.0579	15.6242	0.0000	0.0017	0.0223	-6.7865	0.0000	50%
CAR (-2,+2)	0.0476	0.0846	13.7968	0.0000	0.0028	0.0279	-4.2504	0.0000	46%
CAR (-5,+5)	0.0483	0.0906	-17.2207	0.0000	0.0010	0.0244	-28.8990	0.0000	60%
CAR (-10,+10)	0.0576	0.1042	-30.7862	0.0000	0.0007	0.0295	-39.5074	0.0000	46%
CAR (-20,+20)	0.0693	0.1101	-14.4447	0.0000	0.0038	0.0407	-22.2493	0.0000	60%
CAR (-20,+30)	0.0665	0.1089	-13.1176	0.0000	-0.0005	0.0456	-21.1411	0.0000	52%
CAR (-1,0)	0.0269	0.0501	40.8441	0.0000	0.0035	0.0187	24.6919	0.0000	50%
CAR (-2,0)	0.0281	0.0501	33.6676	0.0000	0.0034	0.0188	19.9986	0.0000	50%
CAR (-5,0)	0.0301	0.0486	24.1463	0.0000	0.0049	0.0195	14.7794	0.0000	58%
CAR (-10,0)	0.0377	0.0574	19.1291	0.0000	0.0050	0.0234	10.7832	0.0000	52%
CAR (-20,0)	0.0490	0.0681	9.7560	0.0000	0.0072	0.0284	2.1122	0.0347	65%
CAR (0,+1)	0.0403	0.0567	17.4365	0.0000	0.0001	0.0216	-9.9783	0.0000	50%
CAR (0,+2)	0.0440	0.0813	16.1057	0.0000	0.0013	0.0284	-6.6857	0.0000	48%
CAR (0,+5)	0.0427	0.0860	-24.8629	0.0000	-0.0020	0.0245	-40.6151	0.0000	46%
CAR (0,+10)	0.0443	0.0949	-44.9749	0.0000	-0.0024	0.0270	-55.5524	0.0000	48%
CAR (0,+20)	0.0448	0.0946	-17.8589	0.0000	-0.0015	0.0324	-26.0949	0.0000	50%
CAR (0,+30)	0.0420	0.0940	-14.9120	0.0000	-0.0059	0.0372	-23.0064	0.0000	42%



Having compared our results to other findings in the bank merger literature, mainly in the USA, we notice that in many cases our results for target shareholders are lower than other findings. In principle the market reacts to merger announcement in a way to value the expected benefit from the merger of two parties, in the sense that the market prices reflect the expected economic gain out of the merger. The event studies use estimates of the abnormal share price changes around the announcement date as a measure of the economic effects of the merger (Jensen and Ruback, 1983). In addition the return to target shareholders is a function of two main factors, namely the offer terms and the expected synergy gains from the merger. Having said that, we also add that the expected synergy might have been influenced by the forces of change that have affected the competitive environment in the banking industry.

These forces of change are discussed by Dermine (1999), who names six of them, viz: national deregulation, international integration, demographics, information technology, entry of new competitors, and the Euro. The latter holds in particular for the European Union, knowing that the adoption of the Second Banking Co-ordination Directive as part of the single European market has removed institutional obstacles for banks to operate freely across national boundaries in Europe since 1993. This means more competition and more pressure on profit making were foreseen in the skies, hence the acceleration of the merger wave in the nineties. With the Euro and the Second Banking Co-ordination Directive, the competitive advantage of local banks in the local government bond market and in the corporate bond and equity markets, particularly in respect of the underwriting and trading business, started to diminish gradually. The reasons being, as Dermine (1999) argues, with monetary union the

sources of competitive advantage for the local banks no longer exist (we have discussed this issue in details in chapter two). As for the foreign exchange markets, for example, BNP Paribas will be no more a French Franc specialist, but competes with other European banks for the Euro/Dollar business.

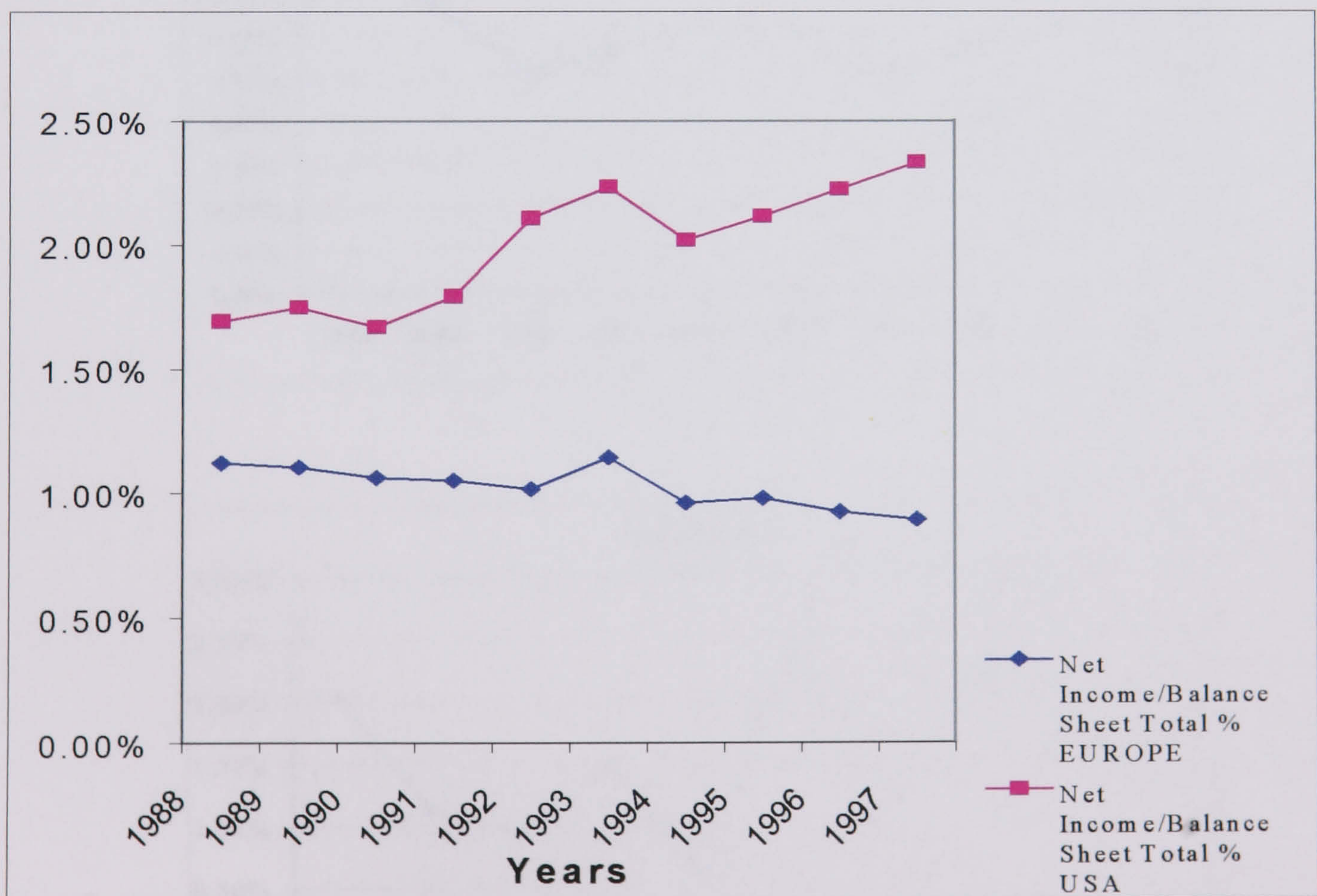
These developments increased competition in the European financial services industry and will boost competition even further, which is leading to more consolidation and rationalisation in the market. We believe that this scenario was foreseen by the market players and fostered the merger wave, mainly in the banking industry in order for banks to consolidate their market position and improve efficiency if they could. Therefore merger might have been the main strategy for banks to prepare for a tougher market environment in order not to lose their current position. Hence the expected benefit maybe very limited and achieving high synergy gains may also be an ambitious objective which may not be realised easily. This vague picture of the expected synergy gains might have been the main source of concern for merger participants and probably caused acquiring banks not to pay high prices for target banks.

On the other hand another argument can be drawn from the historical profitability of the European banking industry, the pattern of profitability has, on average, decreased in most of the European countries we cover in our study since 1988 (see figure 3.4). This pattern becomes so apparent when we observe the figures of Net income to average assets (ROAA), for the Europe as one unified market. The ratio dropped about 20.5% between 1988 and 1997, whereas for the USA it has increased about 38% for the same period, see Figure (3.3) for comparison. The trend of increasing

profitability in USA is maybe a source of optimism about the expected future performance in the industry and therefore acquirers may be tempted to pay higher prices for the targets. These higher prices are driving the market to react more favourably to the merger announcement and therefore are generating high target abnormal returns. Whereas, we believe that the scenario of decreasing profitability in the European banking markets, in addition to the changing environment and the increased competition, creates more of a gloomy picture of the future performance in the industry as a whole. Therefore acquirers in European bank mergers may not be willing to pay high prices to the target banks hence target returns are not very high compared to those in the USA.

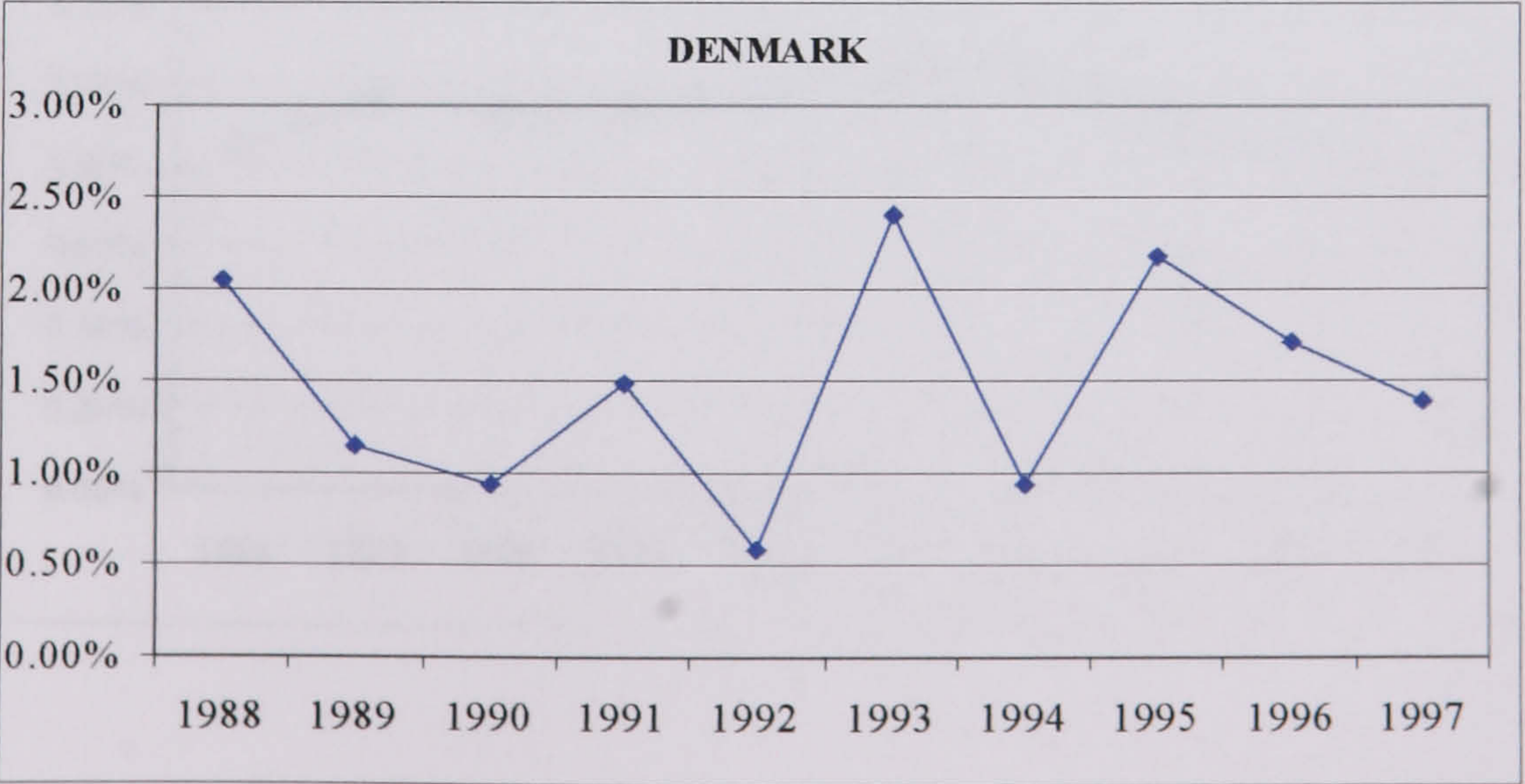
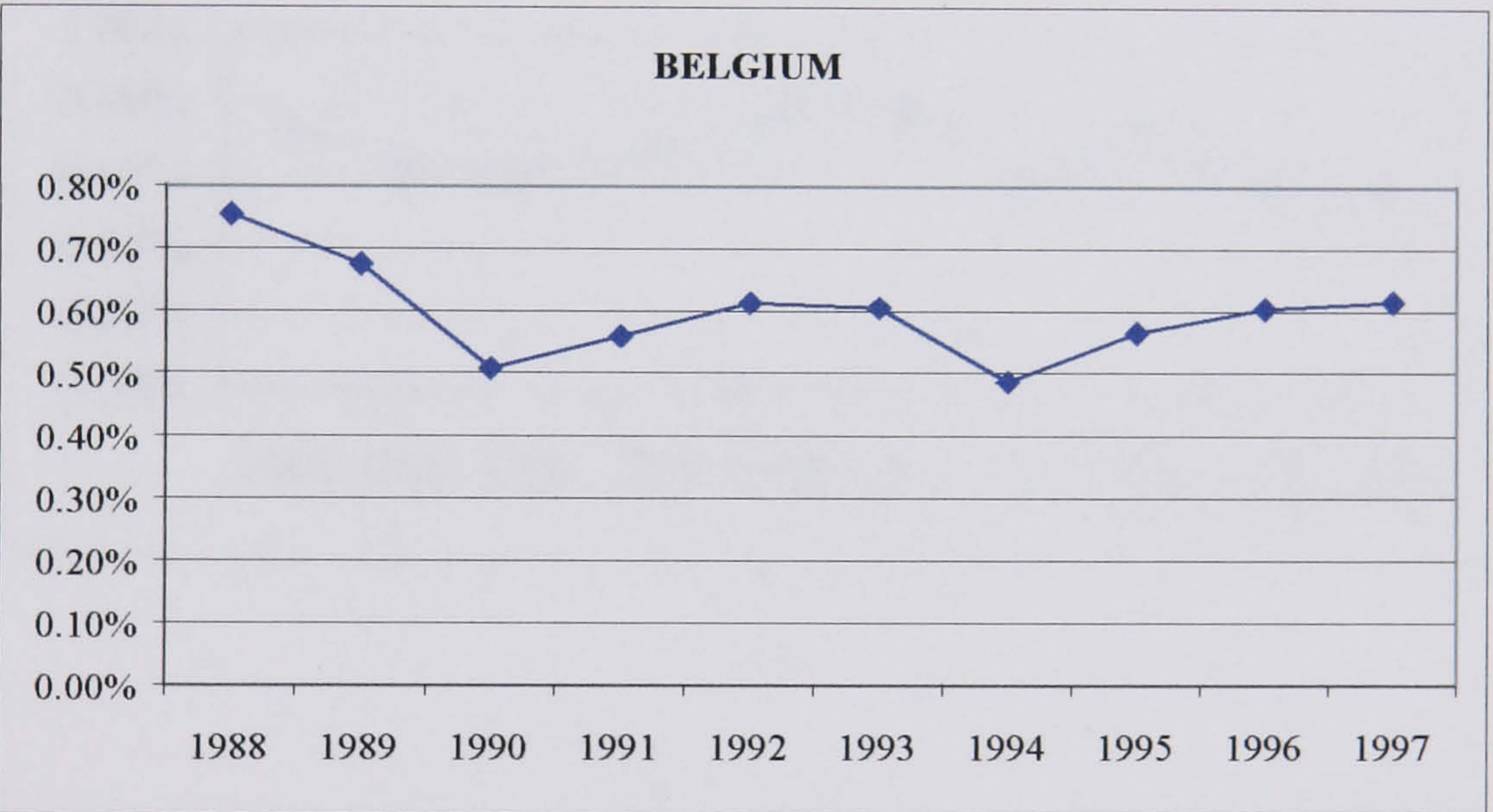
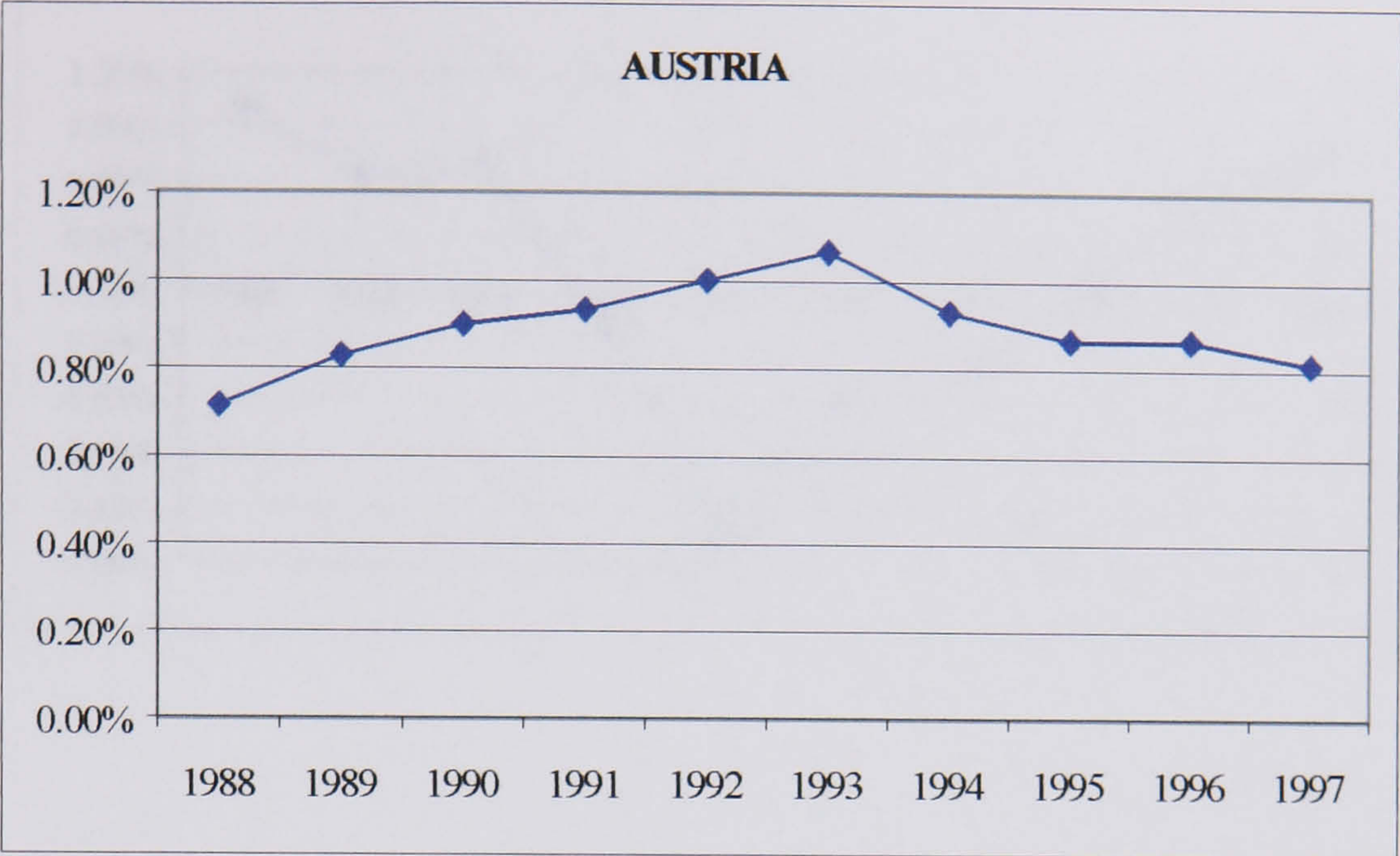
**Figure (3.3): Comparative Return on Assets for Europe and USA.**

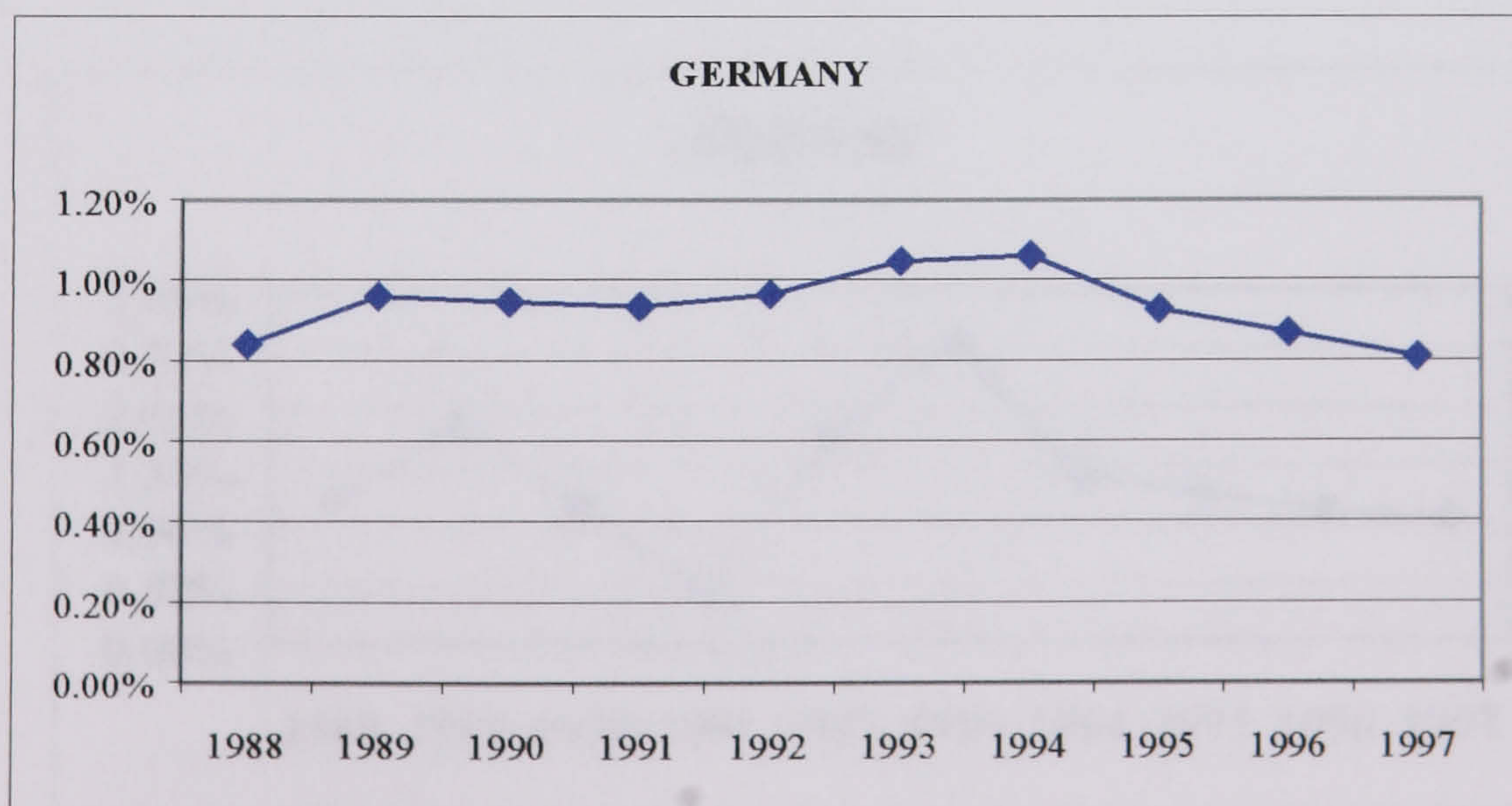
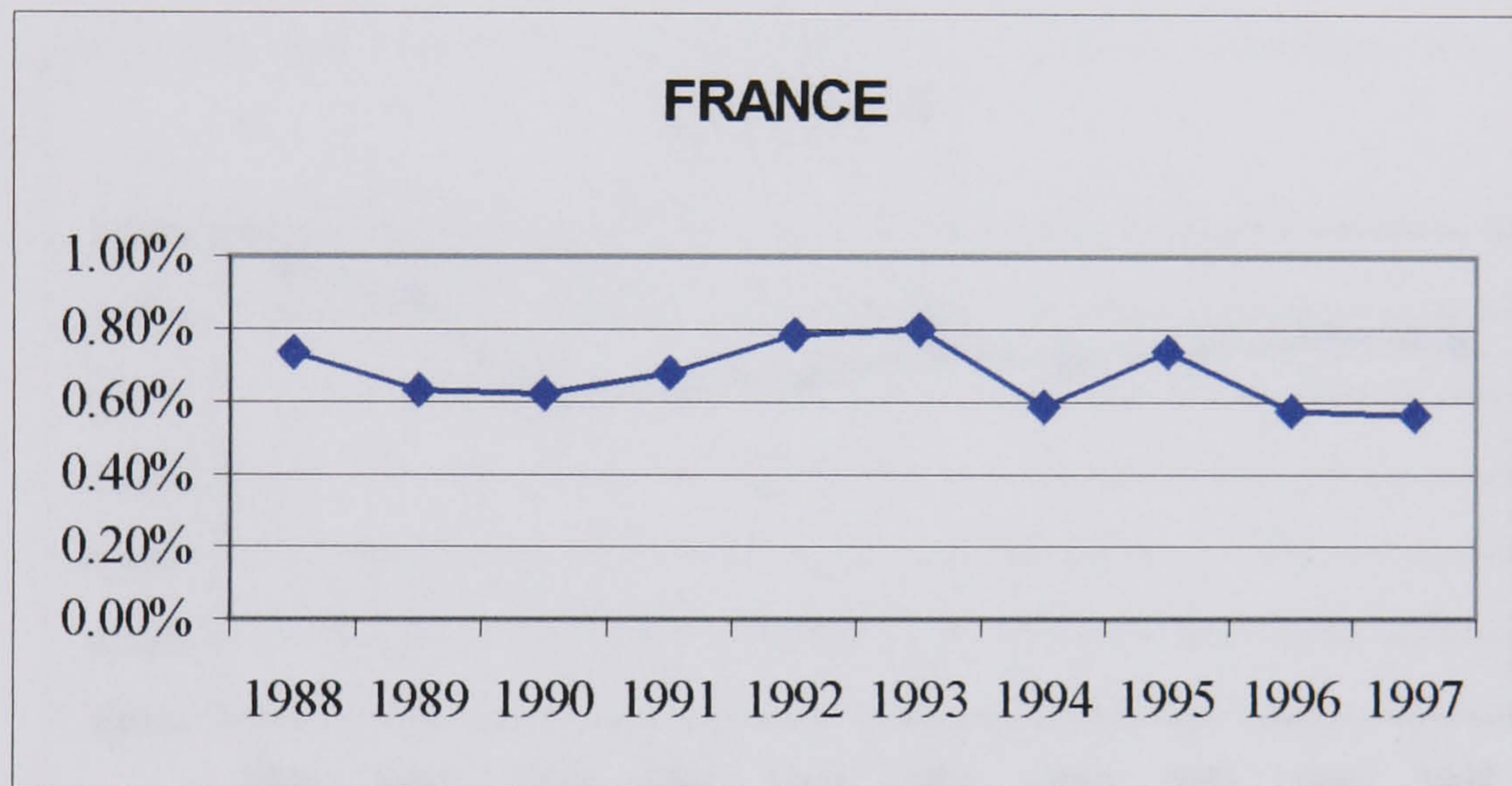
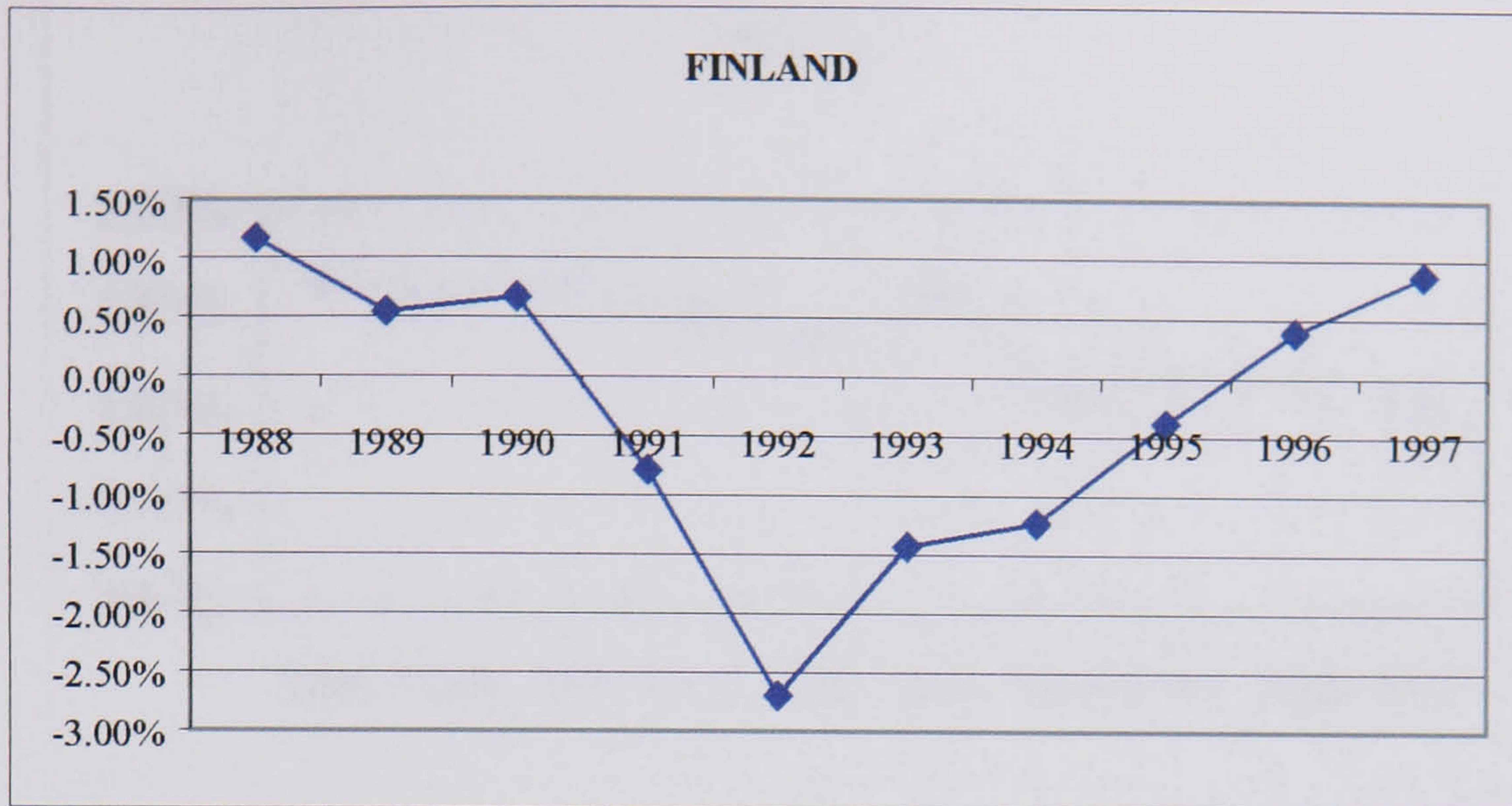
The figure is a comparative chart for the Net income/Average Balance Sheet Assets in Europe and the USA between 1988 and 1997.

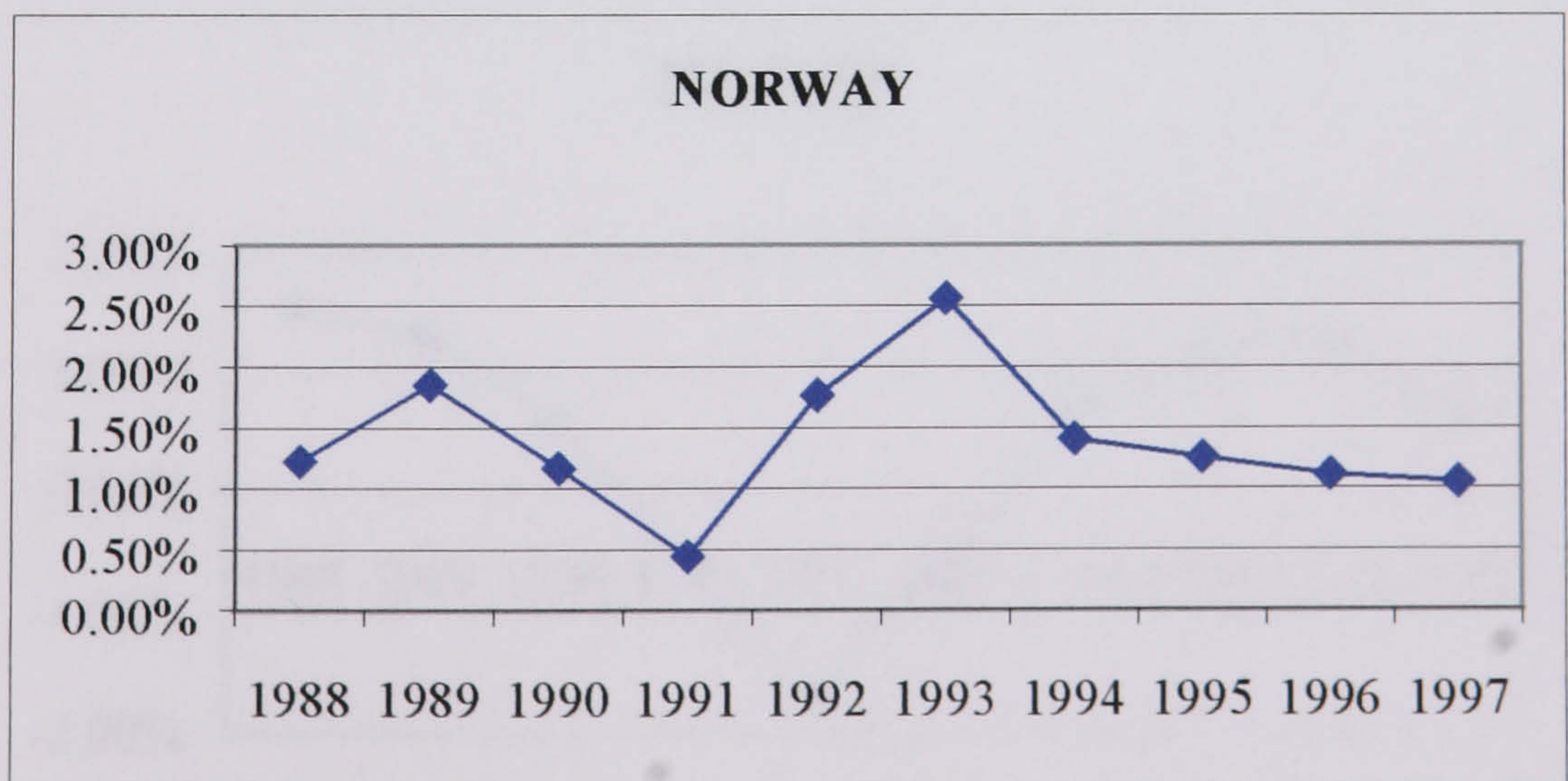
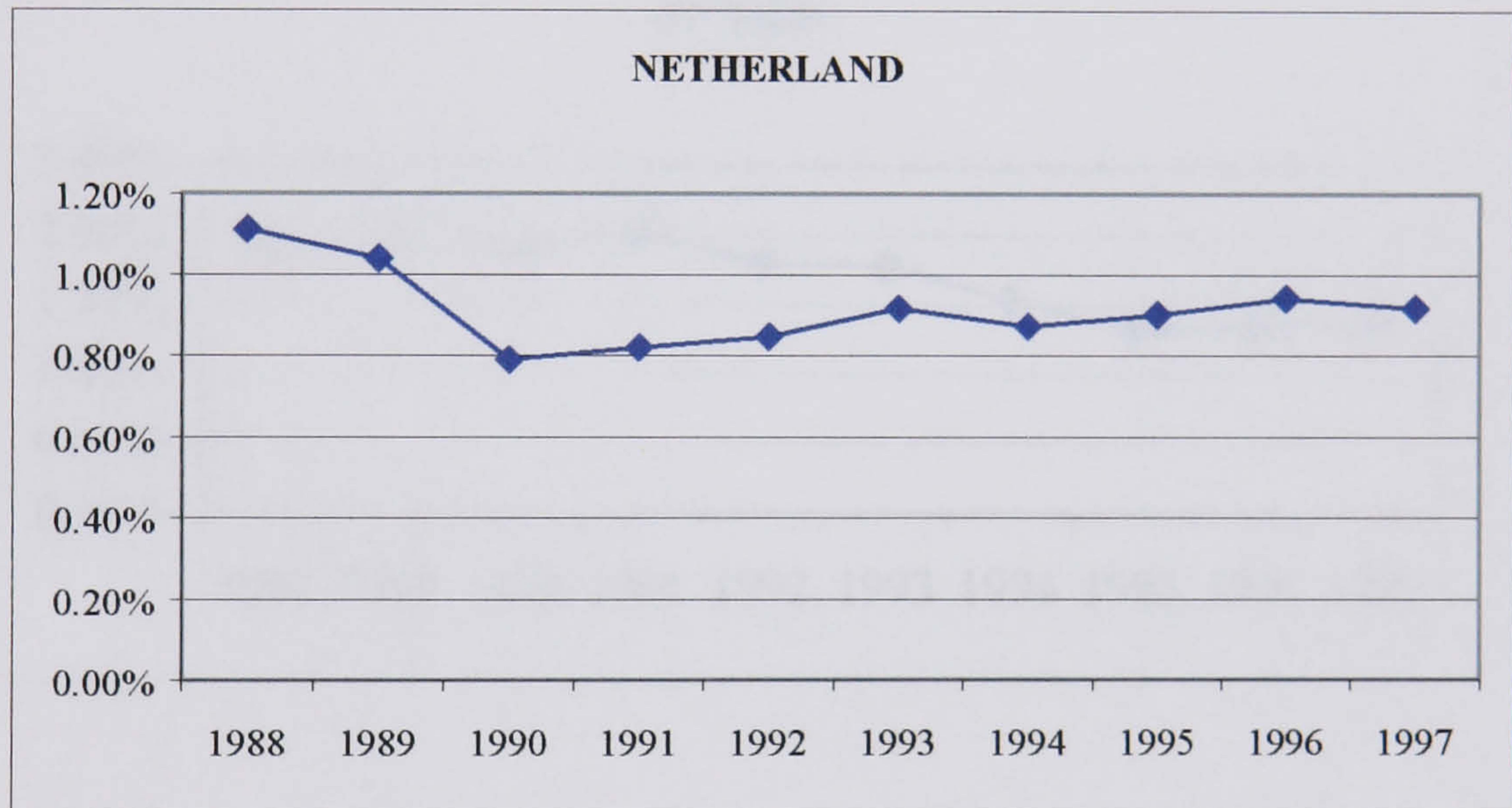
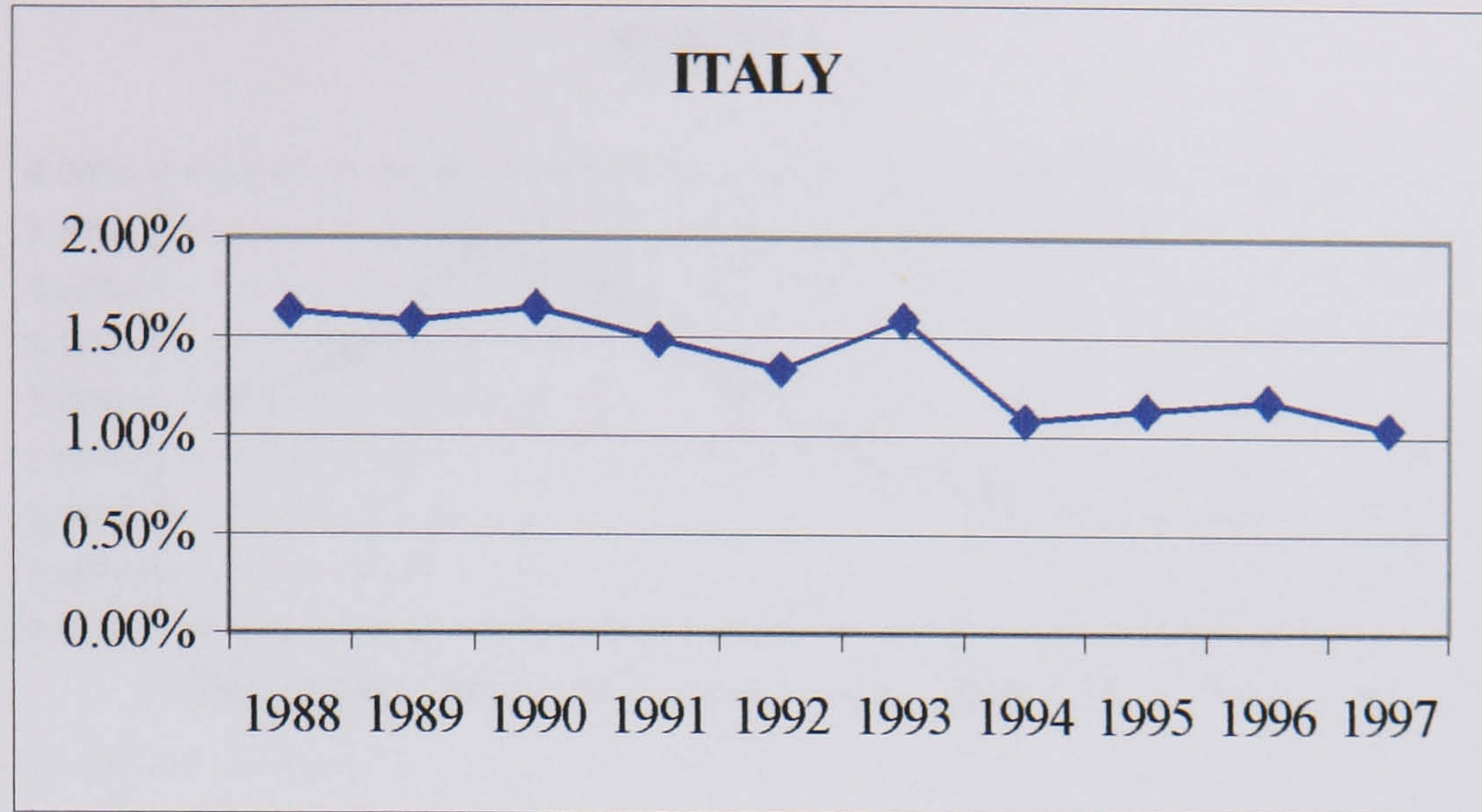


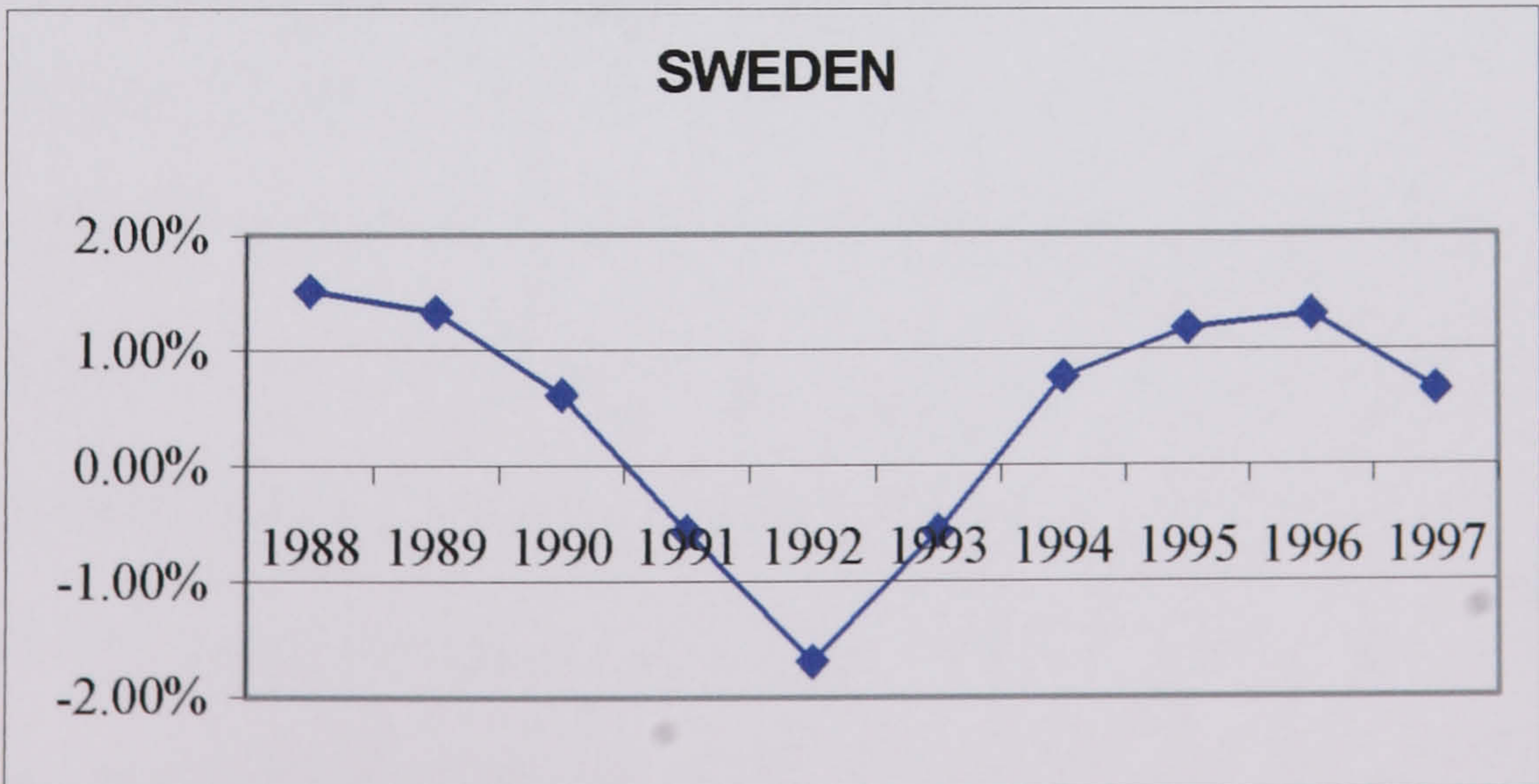
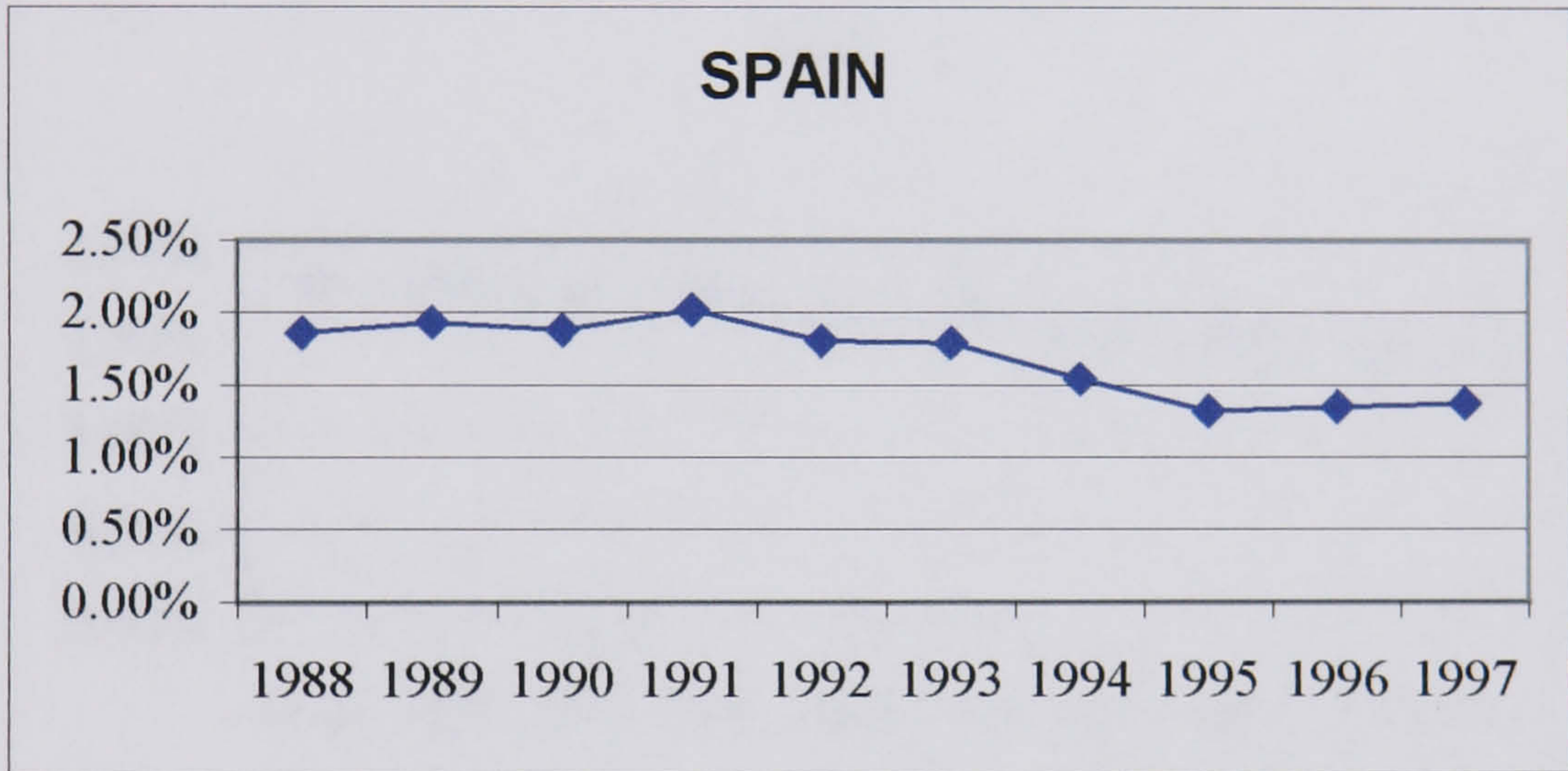
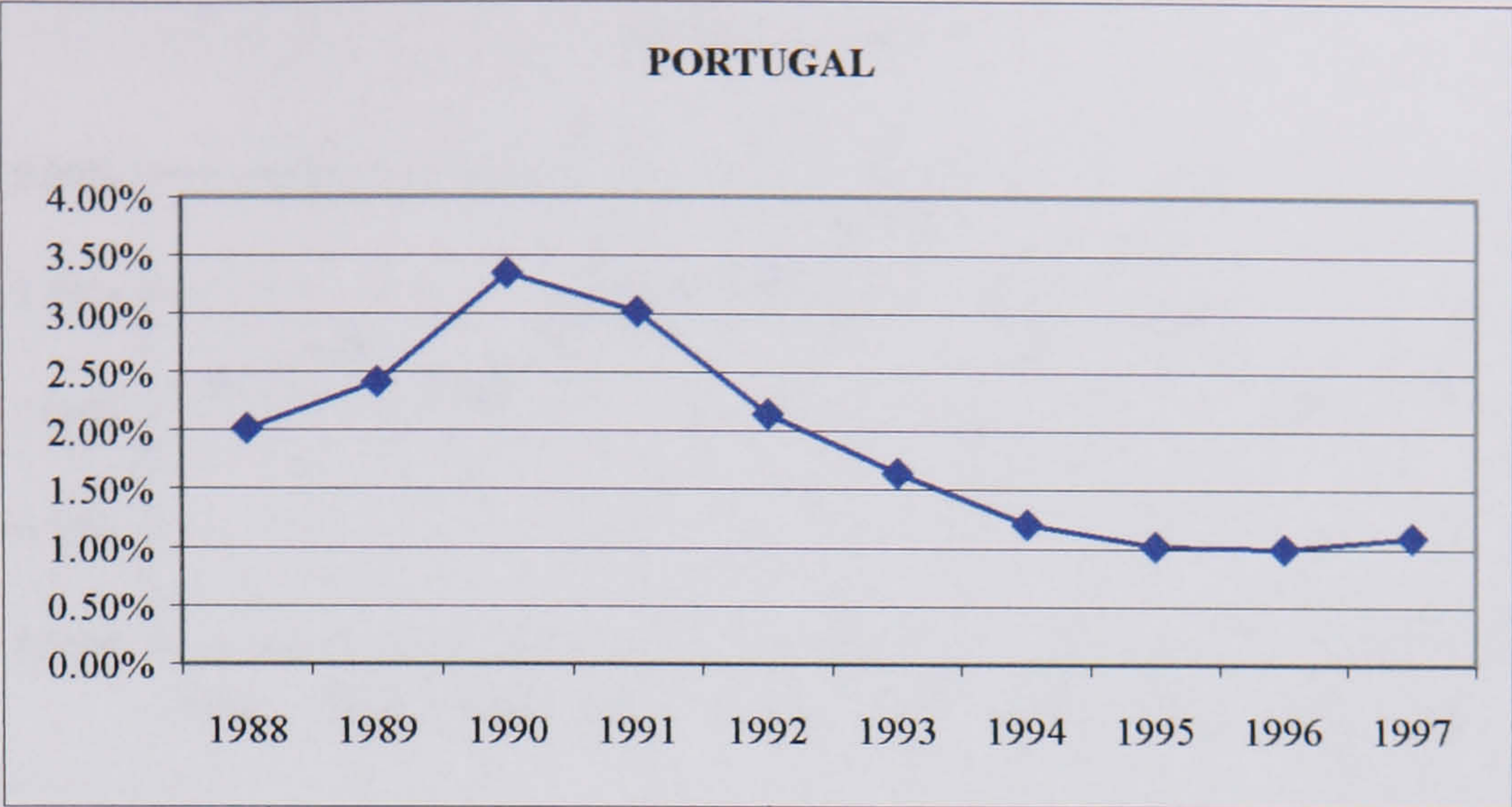
Source: Bank Profitability-Financial Statements for Banks, edition 1999, Organisation for Economic Co-operation and Development (OECD).

**Figure (3.4): Net Income/Average Balance Sheet Assets Charts for The European Countries between 1988 and 1997.**

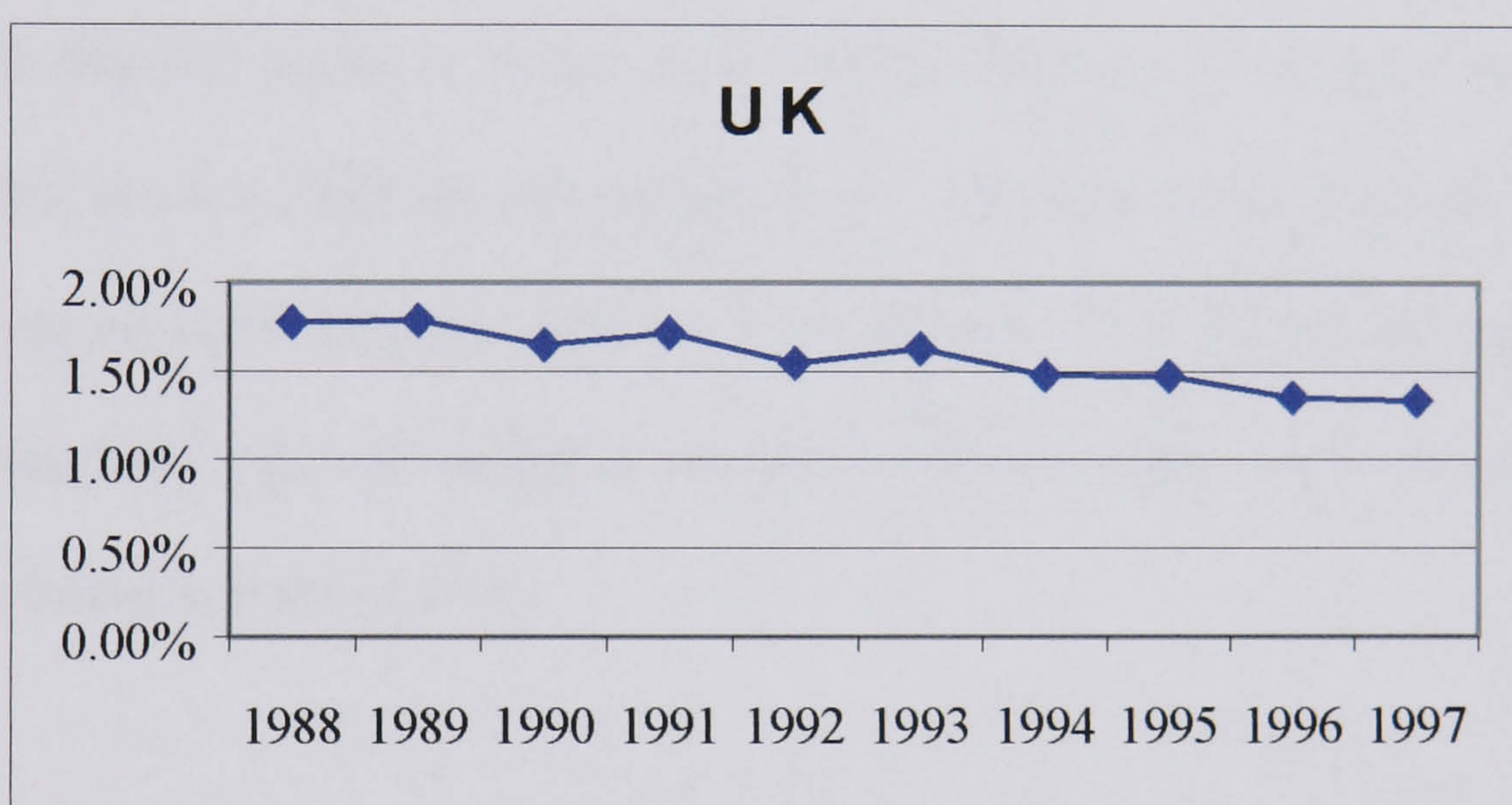
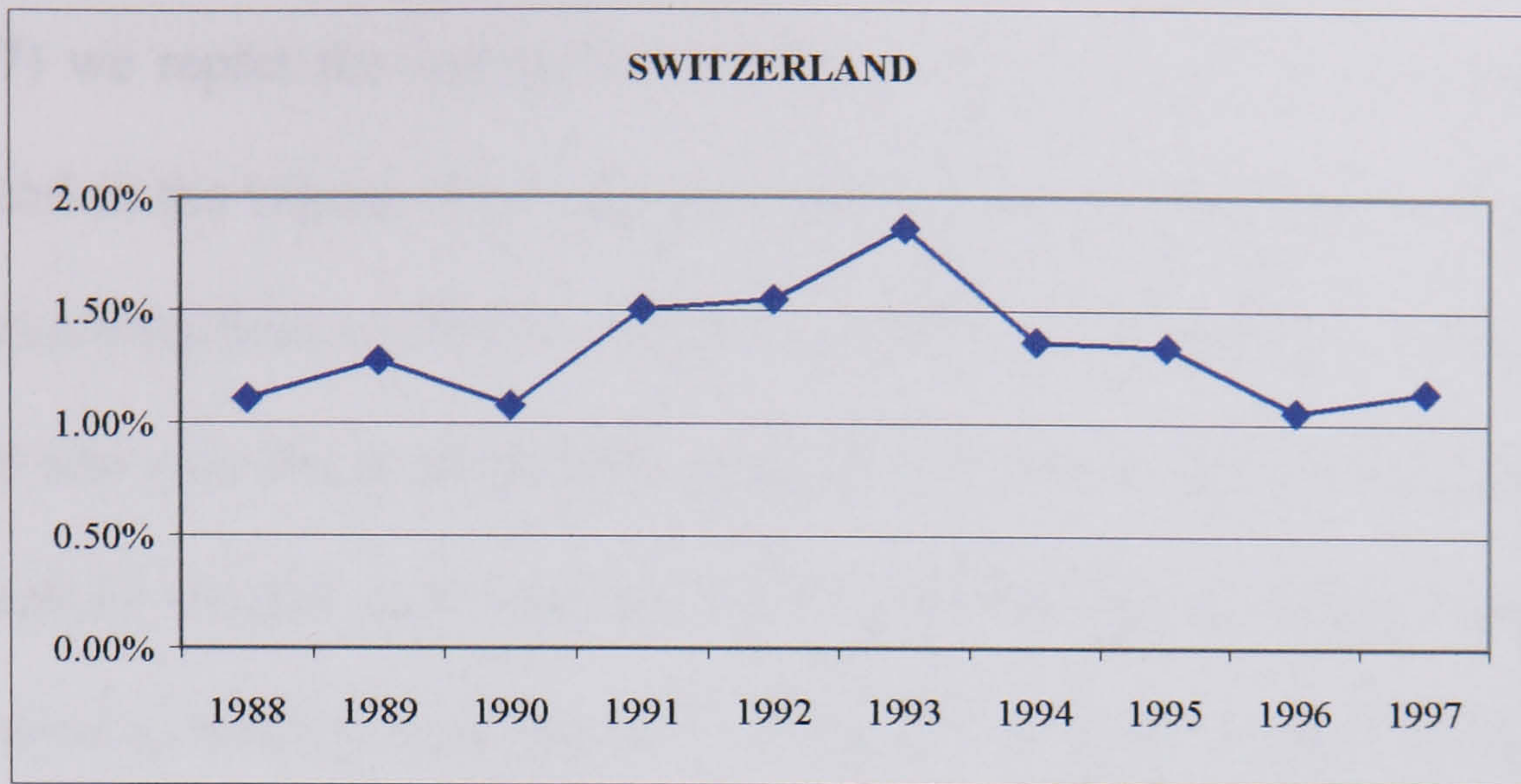








### 3.2.2 Return to acquiring



Source: Bank Profitability-Financial Statements for Banks, edition 1999, Organisation for Economic Co-operation and Development (OECD).



### **3.5.2 Return to acquiring firms shareholders.**

In table (3.7) we report the cumulative abnormal returns for the total sample of 89 acquirers. And in the Figure (3.2) we show a comparative pattern of the CAR of the target and acquiring banks between -20 and +30 days. The results we obtained were in general in line with many of the findings of other research done in the literature of the USA banking merger and acquisition. For our total sample of 89 acquirers, the three days announcement period return is not significantly different from zero, while in the (-2,2) event window the return is 0.18%, minimal but significant at the 1% level. The return fades out afterwards until it negates itself 30 days after the announcement day but again it is not significantly different from zero then. This return of 0.18% is very close to the comparative CAR reported by Cornett and De (1991) for the same event window, which was 0.16% however, for the sub-sample of acquisition deals the CAR was negative but not significantly different from zero, the same result is found in Palia (1994a).

Other studies reported lower (negative) returns for acquirers. For example, Baradwaj et al (1990) found significant negative CAR of -1.28% in (-1,0) event window, a return close to the one reported in Siems (1996) of -1.5%, while Cornett and Tehranian (1992) found slightly higher return of -0.8% for the same event window. The result we found for this window is 0.13% and is significant at the 5% level. When we compare our findings to those of Cybo-Ottone and Murgia (2000), we notice they reported negative but not significantly different from zero CAR for all event windows they examined when they use the Datastream Bank Sector Index as their Benchmark to calculate the abnormal returns. However their results differ when they employ the Datastream General Market Index to the extent that they reported

positive but not significant returns in the pre-merger announcement event windows, while for the (-1,1) window they found 0.99% return. Our result for this period is 0.28% for the sub-sample of 55 acquirers involved in large deals (table 3.8 Panel A), and 0.17% for the second sub-sample of 41 acquirers in large deals extending until 1997 only (table 3.8 Panel B). We also remark that our results for these two sub-samples of large deals are significant at the 1% and 5% level in all the event windows we examined except the window (-20,0) in Table (3.8) Panel A, where the CAR is 0.5% significant at the 15% level.

### **3.5.3 Bivariate Analysis.**

We have also considered adding more insight into the analysis and therefore, have subdivided our sample into sub-samples based on various criteria and deals characteristics. After constructing our sub-samples we have also carried out significance tests for each sub-sample using z-tests, and finally we examined the difference in returns for the sub-samples in various sub-groups, such as merger deals vs. acquisition deals. In order to investigate the significance of our results, we computed statistical tests for the mean difference returns between sub-samples using z-tests for difference in means.

#### **3.5.3.1 In-Market vs. Cross-Product Deals.**

In our first criterion we split the sample into one sub-sample of M&A between commercial banks (in-market deals) and another between commercial banks and other financial institutions, such as insurance companies and securities firms and brokerage houses (cross-product deals). The weighted-average return for deals between commercial banks (table 3.9) is higher than that for cross-product deals in the various

event windows examined. The difference in returns is significant in the one day and two days event windows preceding the announcement day, and in the five and ten days following the announcement. This latter result reveals that the return is persistent for 10 days after announcement. Moreover the returns in in-market deals are characterised by high variability compared to those in cross-product deals. This finding is contrary to the outcome reported in Cybo-Ottone and Murgia (2000)<sup>39</sup>.

The target returns in both sub-samples are all significantly different from zero, and the magnitude of the return reaches its maximum value in the large windows of (-20,20) and (-20,30) at almost 6%. As for the difference in returns in both sub-samples, it seems that, throughout all the event windows examined, the differences in returns are almost evenly distributed between the two sub-samples of in-market and cross-product deals. But if we consider the (-10,0) event window, as examined by Cybo-Ottone and Murgia (2000), we again find contrasting results to theirs since the average return to targets in in-market deals is slightly, but significantly, higher than the return to targets in cross-product deals (table 3.10).

The acquirer return (results are reported in table 3.11), on the other hand, is significantly different from zero at some event windows only in in-market deals but not in cross-product deals where there is no evidence of positive returns. However, as in the weighted-average returns and the target returns, our findings contrast with those of Cybo-Ottone and Murgia (2000), since first, the acquirer returns, which are significantly different from zero, are positive. Second, in the event window (-10,0) the acquirer return is positive but not statistically significant.

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<sup>39</sup> Cybo-Ottone and Murgia (2000) examine the returns in sub-samples for one event window only that is, (-10,0).

**TABLE 3.9: Weighted-Average CAR: Cross Product vs. Bank to Bank Deals.**

The table presents results of the event study for a sample of 52 Bank to Bank deals and 24 Cross Product Deals where acquirers and targets were simultaneously listed. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Value weighted ARs are computed using the market value of equity at the end of the month before the announcement date. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

<i>In-Market Deals</i>	<i>N = 52</i>					<i>N = 24</i>					<i>Mean Difference Tests of Significance</i>	
	<i>Mean Return</i>	<i>STD Dev</i>	<i>Z-Test</i>	<i>P-Value</i>	<i>% Pos</i>	<i>Mean Return</i>	<i>STD Dev</i>	<i>Z-Test</i>	<i>P-Value</i>	<i>% Pos</i>	<i>Z-Test</i>	<i>P-Value</i>
CAR (-1,+1)	0.0066	0.0173	2.1801	0.0293	56%	0.0028	0.0141	1.5050	0.1323	75%	-0.0026	0.9980
CAR (-2,+2)	0.0087	0.0273	3.5296	0.0004	65%	0.0026	0.0147	0.8873	0.3749	63%	-0.5728	0.5668
CAR (-5,+5)	0.0078	0.0289	-5.7131	0.0000	65%	-0.0026	0.0195	-0.8164	0.4143	54%	0.7787	0.4362
CAR (-10,+10)	0.0058	0.0328	-10.3404	0.0000	67%	0.0029	0.0245	0.2082	0.8351	50%	1.3224	0.1860
CAR (-20,+20)	0.0066	0.0398	-5.7999	0.0000	62%	0.0011	0.0307	0.2905	0.7714	63%	0.5531	0.5802
CAR (-20,+30)	0.0045	0.0455	-5.6964	0.0000	58%	-0.0055	0.0362	-0.5119	0.6087	50%	0.3953	0.6926
CAR (-1,0)	0.0041	0.0142	10.0679	0.0000	50%	0.0022	0.0097	1.4003	0.1614	75%	-3.2404	0.0012
CAR (-2,0)	0.0043	0.0153	8.3542	0.0000	62%	0.0020	0.0104	0.9139	0.3608	63%	-2.3131	0.0207
CAR (-5,0)	0.0059	0.0181	7.0222	0.0000	62%	0.0017	0.0103	0.3018	0.7628	58%	-1.5314	0.1257
CAR (-10,0)	0.0039	0.0206	4.5053	0.0000	58%	0.0003	0.0167	-0.2724	0.7853	38%	-0.8411	0.4003
CAR (-20,0)	0.0059	0.0263	1.2264	0.2201	58%	0.0002	0.0196	0.2253	0.8217	58%	-0.1120	0.9108
CAR (0,+1)	0.0059	0.0160	2.0670	0.0387	63%	0.0018	0.0120	1.2042	0.2285	63%	-0.1324	0.8946
CAR (0,+2)	0.0078	0.0254	3.9305	0.0001	65%	0.0019	0.0124	0.8532	0.3935	54%	-0.8874	0.3749
CAR (0,+5)	0.0053	0.0263	-9.2933	0.0000	58%	-0.0030	0.0186	-0.9676	0.3332	42%	1.8359	0.0664
CAR (0,+10)	0.0053	0.0301	-14.7568	0.0000	58%	0.0039	0.0192	0.8847	0.3763	54%	2.7531	0.0059
CAR (0,+20)	0.0041	0.0328	-6.4096	0.0000	63%	0.0020	0.0222	0.4155	0.6777	54%	0.8711	0.3837
CAR (0,+30)	0.0020	0.0381	-5.9118	0.0000	52%	-0.0046	0.0283	-0.6487	0.5166	46%	0.5089	0.6108

**TABLE 3.10: CAR for Targets: Cross Product vs. Bank to Bank Deals.**

The table presents results of the event study for a sample of targets from 63 bank to bank deals and 26 Cross Product deals. Abnormal returns are computed individually for targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

<i>In-Market Deals</i>	<i>N = 63</i>					<i>Cross Product N = 26</i>					<i>Mean Difference Tests of Significance</i>	
	<i>Mean Return</i>	<i>STD Dev</i>	<i>Z-Test</i>	<i>P-Value</i>	<i>% Pos</i>	<i>Mean Return</i>	<i>STD Dev</i>	<i>Z-Test</i>	<i>P-Value</i>	<i>% Pos</i>	<i>Z-Test</i>	<i>P-Value</i>
CAR (-1,+1)	0.0293	0.0617	12.6494	0.0000	64%	0.0225	0.0364	10.0056	0.0000	73%	0.9276	0.3536
CAR (-2,+2)	0.0335	0.0784	11.9585	0.0000	67%	0.0227	0.0550	7.5337	0.0000	62%	-0.0459	0.9634
CAR (-5,+5)	0.0419	0.0881	-11.3853	0.0000	67%	0.0330	0.0727	7.1768	0.0000	65%	3.6733	0.0002
CAR (-10,+10)	0.0459	0.0944	-22.8877	0.0000	72%	0.0531	0.0978	7.3085	0.0000	62%	4.0360	0.0001
CAR (-20,+20)	0.0574	0.1107	-10.6236	0.0000	72%	0.0583	0.1197	5.8640	0.0000	62%	1.6658	0.0957
CAR (-20,+30)	0.0582	0.1198	-8.6099	0.0000	66%	0.0542	0.1207	4.7953	0.0000	58%	1.2155	0.2242
CAR (-1,0)	0.0159	0.0493	30.4583	0.0000	56%	0.0119	0.0294	6.7005	0.0000	58%	-7.6218	0.0000
CAR (-2,0)	0.0185	0.0497	26.2681	0.0000	67%	0.0103	0.0309	4.7860	0.0000	54%	-5.8497	0.0000
CAR (-5,0)	0.0206	0.0511	19.4318	0.0000	61%	0.0116	0.0287	3.2331	0.0012	58%	-3.1656	0.0015
CAR (-10,0)	0.0243	0.0534	15.3430	0.0000	72%	0.0179	0.0533	3.0827	0.0021	54%	-1.7114	0.0870
CAR (-20,0)	0.0322	0.0669	7.5427	0.0000	63%	0.0230	0.0591	3.0480	0.0023	58%	-0.3273	0.7435
CAR (0,+1)	0.0272	0.0609	13.7107	0.0000	67%	0.0200	0.0341	11.1935	0.0000	69%	1.4388	0.1502
CAR (0,+2)	0.0288	0.0765	12.5846	0.0000	72%	0.0218	0.0496	9.5446	0.0000	58%	0.7236	0.4693
CAR (0,+5)	0.0351	0.0881	-18.2911	0.0000	70%	0.0308	0.0713	9.7403	0.0000	62%	7.3751	0.0000
CAR (0,+10)	0.0355	0.0913	-34.7391	0.0000	69%	0.0447	0.0836	9.4201	0.0000	58%	8.0394	0.0000
CAR (0,+20)	0.0391	0.0982	-13.5369	0.0000	61%	0.0447	0.1012	6.8860	0.0000	62%	2.8582	0.0043
CAR (0,+30)	0.0399	0.1096	-9.9675	0.0000	61%	0.0407	0.1019	5.0743	0.0000	65%	1.7328	0.0831

**TABLE 3.11: CAR for Acquirers: Cross Product vs. Bank to Bank Deals.**

The table presents results of the event study for a sample of acquirers from 60 Bank to Bank deals and 29 Cross Product deals. Abnormal returns are computed individually for acquirers with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from  $-210$  to  $-21$  days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

<i>In-Market Deals</i>	<i>N = 60</i>					<i>N = 29</i>					<i>Mean Difference Tests of Significance</i>	
	<i>Mean Return</i>	<i>STD Dev</i>	<i>Z-Test</i>	<i>P-Value</i>	<i>% Pos</i>	<i>Mean Return</i>	<i>STD Dev</i>	<i>Z-Test</i>	<i>P-Value</i>	<i>% Pos</i>	<i>Z-Test</i>	<i>P-Value</i>
CAR (-1,+1)	0.0002	0.0217	0.9482	0.0000	37%	0.0003	0.0130	0.6586	0.5101	66%	-0.0003	0.9998
CAR (-2,+2)	0.0016	0.0272	2.5535	0.0000	47%	0.0022	0.0126	0.8837	0.3768	55%	-0.3273	0.7434
CAR (-5,+5)	0.0028	0.0276	2.0644	0.0000	52%	-0.0019	0.0179	-0.6104	0.5416	59%	-0.5064	0.6126
CAR (-10,+10)	0.0001	0.0351	1.0394	0.0000	52%	0.0023	0.0257	0.3394	0.7343	48%	-0.0687	0.9453
CAR (-20,+20)	0.0008	0.0417	0.7987	0.0000	53%	0.0008	0.0316	0.3861	0.6994	59%	-0.0217	0.9827
CAR (-20,+30)	-0.0041	0.0523	-0.3926	0.0000	52%	-0.0055	0.0366	-0.3402	0.7337	48%	-0.0077	0.9938
CAR (-1,0)	0.0016	0.0183	2.2729	0.0000	43%	0.0007	0.0086	0.7927	0.4280	62%	-0.4572	0.6475
CAR (-2,0)	0.0012	0.0184	1.5856	0.0000	40%	0.0029	0.0098	1.4148	0.1571	59%	0.1481	0.8822
CAR (-5,0)	0.0042	0.0211	2.9516	0.0000	53%	0.0030	0.0131	0.7397	0.4595	59%	-0.4399	0.6600
CAR (-10,0)	0.0015	0.0256	1.3307	0.0000	53%	-0.0014	0.0127	-0.2305	0.8177	41%	-0.2861	0.7748
CAR (-20,0)	0.0039	0.0304	1.3384	0.0000	53%	-0.0017	0.0194	0.1405	0.8883	55%	-0.1415	0.8874
CAR (0,+1)	-0.0002	0.0204	0.6926	0.0000	45%	-0.0007	0.0109	-0.1907	0.8488	59%	-0.3902	0.6964
CAR (0,+2)	0.0016	0.0269	3.1840	0.0000	55%	-0.0010	0.0111	-0.4410	0.6592	45%	-1.2584	0.2082
CAR (0,+5)	-0.0002	0.0259	0.8853	0.0000	45%	-0.0052	0.0167	-1.6842	0.0921	34%	-0.7709	0.4408
CAR (0,+10)	-0.0002	0.0289	0.8748	0.0000	45%	0.0034	0.0223	0.6121	0.5405	55%	0.0010	0.9992
CAR (0,+20)	-0.0020	0.0319	0.3345	0.0000	43%	0.0021	0.0223	0.3358	0.7370	52%	0.0185	0.9852
CAR (0,+30)	-0.0069	0.0436	-1.1469	0.0000	43%	-0.0042	0.0276	-0.6039	0.5459	45%	0.0285	0.9772

We also provide a summary of our findings in the event window (-10,0) according to various deals' characteristics, and we report those in table (3.21).

The conclusion we get from these findings is that mergers between commercial banks are creating higher value to shareholders than mergers based on diversifying the scope of banks' operations into insurance business or brokerage and securities services. These findings support the market power hypothesis and the synergy hypothesis, so that the acquiring bank can succeed in reducing price competition in the market by acquiring some of its competitors (see Stigler 1964) and can also benefit from cutting operating expenses via economy of scale or consolidating overlapping businesses and operations, such as back office operations. Similar results were found by Vander Venet (1999a) in a study that examined the post-merger performance of a sample of European banks between 1988-1992. Other findings similar to ours were reported by DeLong (1998) who found that a more 'activity focus' merger had positive effect in value. Moreover, studies outside of financial services suggest that diversifying M&As are generally value-reducing, and that increases in corporate focus are value-enhancing (Lang and Stulz, 1994; Berger and Ofek, 1995; John and Ofek, 1995).

These results seem logical on the basis that, where they have thought it appropriate, many banks have already established their own insurance business divisions or investment banking arms rather than acquiring these by merging with or taking over other firms in the market.

**TABLE 3.21: Summary CAR for All Type of Deals in (-10,0) Window.**

The table presents summary results of the event study for a sample of 89 acquirers and 89 targets from 102 deals according to various deal characteristics in the event window (-10,0) and Non-parametric tests of significance. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Tests of significance for the median are calculated using the non-parametric test, Wilcoxon signed rank test and the Mann-Whitney test for difference in median between various sub-samples.

<i>Type of Deal</i>	<i>Targets</i>			<i>Acquirers</i>			<i>Tests of Significance P-Values</i>			
	<i>Number</i>	<i>Mean</i>	<i>% Pos</i>	<i>Wilcoxon</i>	<i>Mann-Whitney</i>	<i>Number</i>	<i>Mean</i>	<i>% Pos</i>	<i>Wilcoxon</i>	<i>Mann-Whitney</i>
<i>Bank to Bank</i>	63	0.0243	72%	0	0.2014	60	0.0015	53%	0.84	0.5087
<i>Cross Product</i>	26	0.0179	54%	0.446		29	-0.0014	41%	0.489	
<i>Acquisition</i>	42	0.0284	67%	0.01	0.4525	47	-0.0017	45%	0.418	0.3996
<i>Merger</i>	47	0.0166	66%	0.018		42	0.0031	55%	0.626	
<i>National</i>	78	0.0172	64%	0.005	0.1897	78	0.0006	47%	0.799	0.76
<i>Cross Border</i>	11	0.0516	83%	0.031		11	0.0006	64%	0.756	
<i>Cash</i>	41	0.0343	68%	0.004	C vs .M 0.3712	40	-0.0036	48%	0.214	C vs. M 0.5926
<i>Mixed</i>	11	0.0383	73%	0.037	M vs. E 0.0204	16	-0.0006	44%	0.938	M vs. E 0.4713
<i>Equity</i>	22	0.0024	61%	0.637	C vs. E 0.1002	21	0.0072	52%	0.532	C vs. E 0.1695



### **3.5.3.2 Acquisition vs. Mergers Deals.**

Our results table (3.12) show consistency with other findings on European bank mergers<sup>40</sup> in that merger deals create more overall value to shareholders than acquisition deals. On the other hand the target returns are much higher in acquisitions deals than in merger deals (table 3.13) so it is also not surprising to notice that a high percentage of targets earn positive abnormal returns in acquisition deals. We also document positive and significant returns to acquirers in merger deals, while in acquisition deals the returns are negative but not statistically significant except in the (0,5) and (0,30) event windows (see table 3.14). The mean difference returns between the two sub-samples are statistically significant in a few event windows, mainly in the various short windows around merger announcement. These findings also support the view that bidders overpay in acquisition deals more than in merger deals, which result usually in negative or non-positive acquirer return. These results are consistent with the hubris hypothesis.

### **3.5.3.3 National vs. Cross-Border Deals.**

When we partition our sample geographically we find that cross-border deals are creating more value to shareholders than national deals in most of the event windows we examined in table (3.15) but the differences are not significantly different from zero, except in the (0,5) and (0,10) event windows.

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<sup>40</sup> Cybo-Ottone and Murgia (2000) find similar results. Vander Venet (1996 and 1999a) reported an improvement of post-merger performance for mergers of equal partners but no performance improvement for acquisition deals.

**TABLE 3.12: Weighted-Average CAR: Acquisition vs. Merger Deals.**

The table presents results of the event study for a sample of 34 Acquisitions deals and 42 Merger Deals where acquirers and targets were simultaneously listed. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Value weighted ARs are computed using the market value of equity at the end of the month before the announcement date. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

Event Window	Acquisition Deals					Merger Deals					Mean Difference Tests of Significance	
	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Z-Test	P-Value
CAR (-1,+1)	0.0029	0.0126	-1.2085	0.2268	76%	0.0065	0.0187	4.1010	0.0000	50%	2.1024	0.0355
CAR (-2,+2)	0.0043	0.0125	-0.5069	0.6123	68%	0.0053	0.0304	3.9250	0.0001	62%	1.3426	0.1794
CAR (-5,+5)	-0.0002	0.0169	-11.4303	0.0000	53%	0.0049	0.0322	2.7093	0.0067	69%	3.1084	0.0019
CAR (-10,+10)	0.0036	0.0180	-14.7576	0.0000	62%	0.0019	0.0375	1.6117	0.1070	62%	2.6292	0.0086
CAR (-20,+20)	0.0067	0.0272	-7.9789	0.0000	68%	-0.0014	0.0433	0.6327	0.5269	57%	0.9924	0.3210
CAR (-20,+30)	0.0042	0.0291	-7.5618	0.0000	65%	-0.0059	0.0510	-0.1738	0.8621	48%	0.7709	0.4408
CAR (-1,0)	0.0021	0.0104	9.3916	0.0000	65%	0.0045	0.0147	3.6092	0.0003	52%	-3.2298	0.0012
CAR (-2,0)	0.0027	0.0105	7.9132	0.0000	68%	0.0038	0.0163	2.6200	0.0088	57%	-2.3846	0.0171
CAR (-5,0)	0.0030	0.0117	5.7688	0.0000	59%	0.0057	0.0189	2.7417	0.0061	62%	-1.0021	0.3163
CAR (-10,0)	0.0015	0.0147	3.5687	0.0004	44%	0.0036	0.0227	1.5865	0.1126	57%	-0.4800	0.6313
CAR (-20,0)	0.0027	0.0200	0.3401	0.7338	53%	0.0042	0.0276	1.1844	0.2363	62%	0.1177	0.9063
CAR (0,+1)	0.0032	0.0117	-1.3971	0.1624	74%	0.0048	0.0170	3.7959	0.0001	55%	2.5297	0.0114
CAR (0,+2)	0.0040	0.0122	-0.8316	0.4056	68%	0.0043	0.0278	4.3925	0.0000	57%	2.0531	0.0401
CAR (0,+5)	-0.0009	0.0176	-15.7754	0.0000	44%	0.0020	0.0284	2.3022	0.0213	60%	5.4163	0.0000
CAR (0,+10)	0.0044	0.0162	-19.9193	0.0000	68%	0.0011	0.0335	1.6563	0.0977	48%	4.7987	0.0000
CAR (0,+20)	0.0064	0.0187	-8.5649	0.0000	74%	-0.0029	0.0360	0.4349	0.6637	50%	1.4529	0.1463
CAR (0,+30)	0.0039	0.0167	-7.5724	0.0000	59%	-0.0073	0.0421	-0.5926	0.5535	43%	0.9399	0.3473

**TABLE 3.13: CAR for Targets: Acquisition vs. Merger Deals.**

The table presents results of the event study for a sample of targets from 42 Acquisition deals and 47 Merger deals. Abnormal returns are computed individually for targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from  $-210$  to  $-21$  days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

Acquisition Deals		N = 42					Merger Deals					N = 47					Mean Difference Tests of Significance	
Event Window	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Z-Test	P-Value	
CAR (-1,+1)	0.0349	0.0522	11.8352	0.0000	72%	0.0201	0.0571	10.8728	0.0000	62%	0.0201	0.0571	10.8728	0.0000	62%	-0.5007	0.6166	
CAR (-2,+2)	0.0397	0.0628	10.6443	0.0000	74%	0.0214	0.0784	9.3595	0.0000	57%	0.0214	0.0784	9.3595	0.0000	57%	-0.4798	0.6313	
CAR (-5,+5)	0.0547	0.0788	-14.6713	0.0000	74%	0.0246	0.0843	6.3382	0.0000	60%	0.0246	0.0843	6.3382	0.0000	60%	4.4996	0.0000	
CAR (-10,+10)	0.0707	0.0953	-26.8202	0.0000	74%	0.0264	0.0881	4.7637	0.0000	64%	0.0264	0.0881	4.7637	0.0000	64%	4.9128	0.0000	
CAR (-20,+20)	0.0947	0.1179	-10.8922	0.0000	81%	0.0224	0.0950	2.5533	0.0107	57%	0.0224	0.0950	2.5533	0.0107	57%	1.4954	0.1348	
CAR (-20,+30)	0.0971	0.1262	-9.5097	0.0000	77%	0.0189	0.0986	2.7680	0.0056	51%	0.0189	0.0986	2.7680	0.0056	51%	1.2234	0.2212	
CAR (-1,0)	0.0194	0.0441	34.6447	0.0000	65%	0.0102	0.0446	7.0652	0.0000	49%	0.0102	0.0446	7.0652	0.0000	49%	-14.0313	0.0000	
CAR (-2,0)	0.0211	0.0448	28.9872	0.0000	65%	0.0114	0.0452	6.2161	0.0000	62%	0.0114	0.0452	6.2161	0.0000	62%	-9.4628	0.0000	
CAR (-5,0)	0.0210	0.0449	20.4627	0.0000	65%	0.0151	0.0469	5.3246	0.0000	55%	0.0151	0.0469	5.3246	0.0000	55%	-4.4563	0.0000	
CAR (-10,0)	0.0284	0.0599	16.4437	0.0000	67%	0.0166	0.0461	4.3235	0.0000	66%	0.0166	0.0461	4.3235	0.0000	66%	-2.6353	0.0084	
CAR (-20,0)	0.0408	0.0726	7.8896	0.0000	67%	0.0187	0.0548	3.4704	0.0005	55%	0.0187	0.0548	3.4704	0.0005	55%	-0.7022	0.4825	
CAR (0,+1)	0.0339	0.0498	13.5487	0.0000	72%	0.0167	0.0567	11.3437	0.0000	64%	0.0167	0.0567	11.3437	0.0000	64%	-1.2472	0.2123	
CAR (0,+2)	0.0371	0.0586	12.2692	0.0000	72%	0.0168	0.0763	10.0250	0.0000	64%	0.0168	0.0763	10.0250	0.0000	64%	-1.0220	0.3068	
CAR (0,+5)	0.0522	0.0783	-20.8721	0.0000	77%	0.0163	0.0826	6.1976	0.0000	60%	0.0163	0.0826	6.1976	0.0000	60%	7.8631	0.0000	
CAR (0,+10)	0.0608	0.0848	-39.1321	0.0000	74%	0.0166	0.0857	4.4299	0.0000	57%	0.0166	0.0857	4.4299	0.0000	57%	9.3729	0.0000	
CAR (0,+20)	0.0724	0.0994	-12.7095	0.0000	77%	0.0106	0.0872	1.6689	0.0951	47%	0.0106	0.0872	1.6689	0.0951	47%	2.2383	0.0252	
CAR (0,+30)	0.0747	0.1085	-10.1317	0.0000	81%	0.0070	0.0938	1.9875	0.0469	45%	0.0070	0.0938	1.9875	0.0469	45%	1.5511	0.1209	

**TABLE 3.14: CAR for Acquirers: Acquisition vs. Mergers Deals.**

The table presents results of the event study for a sample of acquirers from 47 Acquisition deals and 42 Merger deals. Abnormal returns are computed individually for acquirers with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

Acquisition Deals		N = 47				Merger Deals				N = 42				Mean Difference Tests of Significance	
Event Window	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Z-Test	P-Value	Z-Test	P-Value	
CAR (-1,+1)	-0.0023	0.0107	-1.2541	0.2098	51%	0.0031	0.0255	3.0071	0.0026	40%	1.7590	0.0786	1.7590	0.0786	
CAR (-2,+2)	-0.0019	0.0127	-0.5105	0.6097	47%	0.0059	0.0310	4.3263	0.0000	52%	1.5628	0.1181	1.5628	0.1181	
CAR (-5,+5)	-0.0048	0.0166	-1.5505	0.1210	38%	0.0080	0.0305	3.6004	0.0003	71%	1.1100	0.2670	1.1100	0.2670	
CAR (-10,+10)	-0.0044	0.0200	-0.9857	0.3243	47%	0.0067	0.0413	2.5671	0.0103	55%	0.5549	0.5790	0.5549	0.5790	
CAR (-20,+20)	-0.0040	0.0274	-0.4343	0.6641	49%	0.0061	0.0479	1.7349	0.0828	62%	0.2435	0.8076	0.2435	0.8076	
CAR (-20,+30)	-0.0098	0.0357	-1.3636	0.1727	45%	0.0013	0.0579	0.6906	0.4898	57%	0.2014	0.8404	0.2014	0.8404	
CAR (-1,0)	-0.0007	0.0069	-0.3636	0.7162	49%	0.0036	0.0216	3.7599	0.0002	50%	2.1086	0.0350	2.1086	0.0350	
CAR (-2,0)	-0.0002	0.0078	0.0099	0.9921	47%	0.0039	0.0219	3.0603	0.0022	45%	1.2801	0.2005	1.2801	0.2005	
CAR (-5,0)	0.0009	0.0100	0.6104	0.5416	51%	0.0071	0.0251	3.4967	0.0005	60%	0.8662	0.3864	0.8662	0.3864	
CAR (-10,0)	-0.0017	0.0127	-0.4791	0.6319	45%	0.0031	0.0294	1.9057	0.0567	55%	0.5168	0.6053	0.5168	0.6053	
CAR (-20,0)	-0.0011	0.0168	-0.0638	0.9491	51%	0.0057	0.0355	1.7839	0.0744	57%	0.2925	0.7699	0.2925	0.7699	
CAR (0,+1)	-0.0024	0.0098	-1.7903	0.0734	53%	0.0019	0.0238	2.5633	0.0104	45%	2.1868	0.0288	2.1868	0.0288	
CAR (0,+2)	-0.0025	0.0125	-1.1735	0.2406	53%	0.0044	0.0305	4.6806	0.0000	50%	2.4292	0.0151	2.4292	0.0151	
CAR (0,+5)	-0.0065	0.0171	-3.0665	0.0022	34%	0.0033	0.0281	2.9025	0.0037	50%	1.7211	0.0852	1.7211	0.0852	
CAR (0,+10)	-0.0035	0.0181	-1.1465	0.2516	49%	0.0060	0.0337	2.7670	0.0057	48%	0.8437	0.3988	0.8437	0.3988	
CAR (0,+20)	-0.0037	0.0216	-0.7337	0.4631	43%	0.0028	0.0356	1.4550	0.1457	50%	0.3407	0.7333	0.3407	0.7333	
CAR (0,+30)	-0.0095	0.0331	-1.8534	0.0638	40%	-0.0020	0.0448	0.0881	0.9298	48%	0.2402	0.8102	0.2402	0.8102	

However, in the announcement period windows, (-1,1), (-1,0), (0,1) and the (-5,0) national deals perform better than cross-border deals but mean difference returns are significant only in the (-1,0) window. It seems that the return does not persist for too long after the announcement of the merger between national banks so that the returns are being negated from 5 days after the announcement. On the other hand the return in cross-border deals is persistently positive and peaks 20 days after the merger announcement at almost 1.3%. Moreover, in the (0,5) and the (0,10) event windows the return in cross-border deals is significantly higher than the return in national deals. Therefore, during the announcement of the merger (-1,0) it seems that the market does not believe that geographic diversification is beneficial for these institutions. But later on in the (0,5) and (0,10) event window it seems that the findings are consistent with the geographical diversification hypothesis where banks are seeking profitable, positive net present value, investments, and spreading their risk geographically<sup>41</sup>. These findings of higher returns in cross-border deals are driven by similar results for target firms where returns are significantly higher than those in national mergers, (see table 3.16). On the other hand acquirers shareholders in cross-border deals are earning higher returns than their counterparts in national deals, but difference in returns is not significantly different from zero (table 3.17). Our results, qualitatively speaking, are consistent with those of Cybo-Ottone and Murgia (2000) except for the weighted-average returns, where they find that national deals earn higher return than cross-border deals in the (-10,0) event window.

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<sup>41</sup> For more details on the advantages of international expansion in the financial services industry see Goldberg and Saunders (1980), (1981) a, (1981) b, Hultman and McGee (1989), and Aguilar (1994).

**TABLE 3.15: Weighted-Average CAR: National vs. Cross-Border Deals.**

The table presents results of the event study for a sample of 66 National deals and 10 Cross Border Deals where acquirers and targets were simultaneously listed. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Value weighted ARs are computed using the market value of equity at the end of the month before the announcement date. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

National Deals	N = 66					Cross Border Deals					N = 10		Mean Difference Tests of Significance	
	Event Window	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Z-Test	P-Value	
CAR (-1,+1)	0.0052	0.0171	2.2833	0.0224	61%	0.0029	0.0093	0.3102	0.7564	70%	-0.3113	0.7556		
CAR (-2,+2)	0.0047	0.0252	1.9553	0.0505	65%	0.0060	0.0140	2.0861	0.0370	60%	0.5522	0.5808		
CAR (-5,+5)	0.0015	0.0275	-6.9633	0.0000	61%	0.0100	0.0165	2.3650	0.0180	70%	1.4261	0.1538		
CAR (-10,+10)	0.0014	0.0317	-10.0562	0.0000	62%	0.0108	0.0163	1.9262	0.0541	60%	1.1877	0.2349		
CAR (-20,+20)	-0.0001	0.0385	-6.0532	0.0000	59%	0.0177	0.0195	2.1352	0.0327	80%	0.6537	0.5133		
CAR (-20,+30)	-0.0036	0.0447	-6.2509	0.0000	52%	0.0136	0.0210	1.7596	0.0785	80%	0.5471	0.5843		
CAR (-1,0)	0.0035	0.0137	9.5241	0.0000	58%	0.0025	0.0065	0.2459	0.8057	60%	-2.2808	0.0226		
CAR (-2,0)	0.0033	0.0146	7.5610	0.0000	61%	0.0034	0.0078	0.5360	0.5920	70%	-1.2951	0.1953		
CAR (-5,0)	0.0046	0.0170	6.2296	0.0000	58%	0.0037	0.0072	0.2520	0.8011	80%	-0.8267	0.4084		
CAR (-10,0)	0.0025	0.0204	3.8530	0.0001	47%	0.0040	0.0116	-0.0668	0.9467	80%	-0.4402	0.6598		
CAR (-20,0)	0.0030	0.0252	1.0595	0.2894	55%	0.0070	0.0182	0.3324	0.7396	80%	-0.0163	0.9870		
CAR (0,+1)	0.0044	0.0156	1.8626	0.0625	62%	0.0022	0.0082	0.4179	0.6760	70%	-0.2024	0.8396		
CAR (0,+2)	0.0041	0.0231	1.9772	0.0480	61%	0.0044	0.0142	2.3889	0.0169	70%	0.8712	0.3836		
CAR (0,+5)	-0.0004	0.0248	-10.6983	0.0000	50%	0.0081	0.0177	3.1142	0.0018	70%	2.7691	0.0056		
CAR (0,+10)	0.0017	0.0279	-14.0847	0.0000	53%	0.0086	0.0204	2.8493	0.0044	80%	2.3410	0.0192		
CAR (0,+20)	-0.0005	0.0301	-6.8665	0.0000	58%	0.0126	0.0253	2.7387	0.0062	80%	1.1004	0.2711		
CAR (0,+30)	-0.0040	0.0360	-6.7078	0.0000	47%	0.0085	0.0279	2.0554	0.0398	70%	0.7810	0.4348		

**TABLE 3.16: CAR for Targets: National vs. Cross-Border Deals.**

The table presents results of the event study for a sample of targets from 78 National deals and 11 Cross Border deals. Abnormal returns are computed individually for targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

<b>National Deals</b>	<b>N = 78</b>				<b>Cross Border Deals</b>				<b>N = 11</b>				<b>Mean Difference Tests of Significance</b>	
	<b>Event Window</b>	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>Z-Test</b>
	<b>CAR (-1,+1)</b>	0.0215	0.0510	9.6920	0.0000	67%	0.0402	0.0803	10.1212	0.0000	67%	3.5032	0.0005	
	<b>CAR (-2,+2)</b>	0.0204	0.0678	7.8018	0.0000	64%	0.0428	0.0995	7.8014	0.0000	75%	2.0396	0.0414	
	<b>CAR (-5,+5)</b>	0.0259	0.0796	-12.0844	0.0000	65%	0.0679	0.1084	8.0839	0.0000	75%	3.5627	0.0004	
	<b>CAR (-10,+10)</b>	0.0338	0.0910	-20.8864	0.0000	68%	0.0750	0.1215	6.6259	0.0000	75%	2.9559	0.0031	
	<b>CAR (-20,+20)</b>	0.0437	0.1038	-9.5691	0.0000	68%	0.0835	0.1651	5.1283	0.0000	75%	1.2752	0.2022	
	<b>CAR (-20,+30)</b>	0.0453	0.1118	-7.7228	0.0000	63%	0.0667	0.1667	3.6744	0.0002	67%	0.8619	0.3888	
	<b>CAR (-1,0)</b>	0.0120	0.0363	27.1086	0.0000	59%	0.0288	0.0808	9.2688	0.0000	42%	-0.6033	0.5463	
	<b>CAR (-2,0)</b>	0.0131	0.0370	23.0518	0.0000	65%	0.0321	0.0812	7.8656	0.0000	50%	-0.4276	0.6689	
	<b>CAR (-5,0)</b>	0.0137	0.0381	16.6481	0.0000	59%	0.0426	0.0792	6.8946	0.0000	67%	0.2456	0.8060	
	<b>CAR (-10,0)</b>	0.0172	0.0478	13.0016	0.0000	64%	0.0516	0.0784	6.4804	0.0000	83%	0.4510	0.6520	
	<b>CAR (-20,0)</b>	0.0219	0.0591	5.7252	0.0000	58%	0.0718	0.0882	6.5191	0.0000	83%	0.8925	0.3721	
	<b>CAR (0,+1)</b>	0.0189	0.0494	9.5691	0.0000	65%	0.0425	0.0801	13.0063	0.0000	83%	6.2310	0.0000	
	<b>CAR (0,+2)</b>	0.0167	0.0649	7.2754	0.0000	65%	0.0417	0.0978	10.2723	0.0000	83%	4.0754	0.0000	
	<b>CAR (0,+5)</b>	0.0216	0.0793	-18.6880	0.0000	67%	0.0563	0.1085	9.7548	0.0000	75%	6.4104	0.0000	
	<b>CAR (0,+10)</b>	0.0260	0.0848	-31.2824	0.0000	67%	0.0545	0.1164	6.8872	0.0000	58%	5.2599	0.0000	
	<b>CAR (0,+20)</b>	0.0312	0.0903	-11.4402	0.0000	64%	0.0428	0.1455	3.6954	0.0002	42%	1.6326	0.1026	
	<b>CAR (0,+30)</b>	0.0328	0.0994	-8.3166	0.0000	65%	0.0259	0.1487	1.8568	0.0633	42%	0.8373	0.4024	

**TABLE 3.17: CAR for Acquirers: National vs. Cross-Border Deals.**

The table presents results of the event study for a sample of acquirers from 78 National deals and 11 Cross Border deals. Abnormal returns are computed individually for acquirers with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method.

<i>National Deals</i>	<i>N = 78</i>						<i>Cross Border Deals</i>						<i>N = 11</i>						<i>Mean Difference Tests of Significance</i>					
<i>Event Window</i>	<i>Mean Return</i>	<i>STD Dev</i>	<i>Z-Test</i>	<i>P-Value</i>	<i>% Pos</i>		<i>Mean Return</i>	<i>STD Dev</i>	<i>Z-Test</i>	<i>P-Value</i>	<i>% Pos</i>		<i>Mean Return</i>	<i>STD Dev</i>	<i>Z-Test</i>	<i>P-Value</i>	<i>% Pos</i>		<i>Z-Test</i>	<i>P-Value</i>				
CAR (-1,+1)	0.0005	0.0202	1.5384	0.1239	45%		-0.0014	0.0097	-0.8129	0.4163	55%		-0.7516	0.4523										
CAR (-2,+2)	0.0016	0.0246	2.1569	0.0310	47%		0.0035	0.0130	1.6551	0.0979	64%		0.3538	0.7235										
CAR (-5,+5)	0.0003	0.0258	0.5453	0.5856	50%		0.0079	0.0155	2.3784	0.0174	82%		0.6135	0.5395										
CAR (-10,+10)	-0.0000	0.0336	0.3784	0.7052	49%		0.0072	0.0191	1.9711	0.0487	64%		0.3736	0.7087										
CAR (-20,+20)	-0.0011	0.0399	0.0798	0.9364	53%		0.0140	0.0237	2.2798	0.0226	73%		0.3289	0.7422										
CAR (-20,+30)	-0.0071	0.0497	-1.3640	0.1726	46%		0.0133	0.0213	2.1629	0.0305	82%		0.3507	0.7258										
CAR (-1,0)	0.0015	0.0167	2.6264	0.0086	51%		0.0004	0.0060	-0.3984	0.6903	36%		-0.9166	0.3593										
CAR (-2,0)	0.0015	0.0170	2.0136	0.0441	44%		0.0033	0.0075	0.6384	0.5232	64%		-0.0637	0.9492										
CAR (-5,0)	0.0040	0.0198	3.0287	0.0025	56%		0.0026	0.0102	0.0293	0.9766	45%		-0.4235	0.6719										
CAR (-10,0)	0.0006	0.0233	1.1974	0.2312	47%		0.0006	0.0121	-0.4549	0.6492	64%		-0.2553	0.7985										
CAR (-20,0)	0.0024	0.0286	1.3584	0.1743	53%		0.0002	0.0166	-0.2633	0.7923	64%		-0.1580	0.8745										
CAR (0,+1)	-0.0001	0.0187	0.8610	0.3892	47%		-0.0022	0.0099	-0.9848	0.3247	64%		-0.8659	0.3865										
CAR (0,+2)	0.0009	0.0237	2.0799	0.0375	51%		-0.0001	0.0172	1.1818	0.2373	55%		0.2166	0.8285										
CAR (0,+5)	-0.0028	0.0237	-1.3648	0.1723	40%		0.0050	0.0202	2.9673	0.0030	55%		1.3299	0.1835										
CAR (0,+10)	0.0002	0.0273	0.0090	0.9928	45%		0.0063	0.0241	3.0131	0.0026	73%		0.8495	0.3956										
CAR (0,+20)	-0.0026	0.0291	-0.7521	0.4520	44%		0.0134	0.0260	3.3292	0.0009	64%		0.7378	0.4606										
CAR (0,+30)	-0.0086	0.0400	-2.4603	0.0139	40%		0.0128	0.0250	2.8926	0.0038	73%		0.6417	0.5211										



Cybo-Ottone and Murgia (2000) explained their results by saying that the relative average size, target to bidder, in cross-border deals is much lower than that in national deals<sup>42</sup>. We report lower difference in average relative size between both sub-samples (49.6% in national deals and 34.4% in cross-border deals) for the period of 1987-1999, and when we restrict our analysis to the period 1988-1997 the average relative size we find is 45% in national deals and 16% in cross-border deals, yet we still observe that cross-border deals earn higher average returns than national deals. However, when we examine the return to targets in both sub-samples we find that the relative target returns, cross-border to national deals, is 2.24 times while in Cybo-Ottone and Murgia (2000) it is only 1.33 times. In other words, the difference in target returns between cross-border deals and national deals is much larger than that reported by Cybo-Ottone and Murgia (2000). Therefore we still report higher returns in cross-border deals though not significantly different from the return in national deals.

#### **3.5.3.4 The Relationship between the Method of Payment and Abnormal Returns.**

We partition our sample based on the method of payment as we believe this factor, which has not been examined in the European banking merger context, would provide new evidence on the financing decisions of banking mergers. We partition the sample into three sub-samples, one sub-sample for deals settled in cash, another for deals settled in equity and a third one for deals settled in a combination of equity, cash and loan notes. We have also examined the mean difference return between every two sub-samples and tested for the statistical significance of the results.

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<sup>42</sup> They report average relative size for cross-border deals of 10.8%, and for national deals of 33.7%.

**TABLE 3.18: Weighted-Average CAR: Cash, Mixed, and Equity Deals.**

Panel A of the table presents results of the event study for a sample of 33 pure Cash deals, 11 Mixed settlement deals where acquirers and targets were simultaneously listed. Abnormal returns are computed individually for acquirers and targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Value weighted ARs are computed using the market value of equity at the end of the month before the announcement date. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method. In Panel B we report the weighted average cumulative abnormal returns for 21 equity deals as well as the mean difference returns tests of significance between every two sub-samples.

<b>Panel A</b>		<b>N = 33</b>				<b>N = 11</b>					
<b>Cash Deals</b>		<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>
CAR (-1,+1)		0.0062	0.0148	-0.6723	0.5014	57%	0.0159	0.0180	5.1133	0.0000	91%
CAR (-2,+2)		0.0088	0.0250	1.2796	0.2007	63%	0.0162	0.0269	4.0479	0.0001	73%
CAR (-5,+5)		0.0059	0.0289	-10.3360	0.0000	51%	0.0145	0.0225	2.4610	0.0139	64%
CAR (-10,+10)		0.0081	0.0307	-14.8977	0.0000	57%	0.0073	0.0254	0.6542	0.5130	73%
CAR (-20,+20)		0.0151	0.0405	-7.3357	0.0000	63%	0.0024	0.0349	-0.0918	0.9268	64%
CAR (-20,+30)		0.0152	0.0431	-6.4462	0.0000	57%	-0.0024	0.0383	-0.4421	0.6584	64%
CAR (-1,0)		0.0030	0.0098	9.9383	0.0000	57%	0.0125	0.0172	4.9544	0.0000	73%
CAR (-2,0)		0.0040	0.0101	8.5345	0.0000	63%	0.0106	0.0199	3.4684	0.0005	64%
CAR (-5,0)		0.0030	0.0103	5.7288	0.0000	60%	0.0121	0.0206	3.0507	0.0023	64%
CAR (-10,0)		0.0026	0.0140	3.8110	0.0001	51%	0.0082	0.0239	1.4105	0.1584	55%
CAR (-20,0)		0.0067	0.0249	0.7247	0.4686	54%	0.0133	0.0278	1.5215	0.1281	91%
CAR (0,+1)		0.0054	0.0138	-0.9526	0.3408	63%	0.0161	0.0153	6.2305	0.0000	91%
CAR (0,+2)		0.0069	0.0235	1.1266	0.2599	57%	0.0183	0.0224	5.7765	0.0000	91%
CAR (0,+5)		0.0051	0.0285	-14.0605	0.0000	46%	0.0151	0.0171	3.1234	0.0018	73%
CAR (0,+10)		0.0077	0.0301	-20.2125	0.0000	57%	0.0118	0.0139	1.5923	0.1113	82%
CAR (0,+20)		0.0105	0.0317	-7.9476	0.0000	66%	0.0018	0.0179	-0.1308	0.8960	55%
CAR (0,+30)		0.0106	0.0341	-6.3731	0.0000	60%	-0.0030	0.0209	-0.5691	0.5693	36%

**TABLE 3.18 Panel B: Weighted-Average CAR: Cash, Mixed, and Equity Deals.**

In Panel B we report the weighted-average cumulative abnormal returns for 21 equity deals as well as the mean difference returns tests of significance between every two sub-samples.

Event Window	Equity				Cash vs. equity				Mixed vs. Equity				Cash vs. Mixed					
	Mean		STD Dev		Z-Test		P-Value		% Pos		Mean Difference Tests of Significance		P-Value		Mean Difference Tests of Significance		P-Value	
	Return										Z-Test	P-Value	Z-Test	P-Value	Z-Test	P-Value	Z-Test	P-Value
CAR (-1,+1)	0.0047	0.0182	2.7443	0.0061	57%	1.4518	0.1465	1.4626	0.1436	-2.7076	0.0068							
CAR (-2,+2)	0.0059	0.0237	2.5251	0.0116	67%	0.6184	0.5363	0.8044	0.4212	-1.5879	0.1123							
CAR (-5,+5)	0.0040	0.0270	1.0195	0.3080	76%	4.3516	0.0000	0.4209	0.6738	-4.3731	0.0000							
CAR (-10,+10)	0.0018	0.0363	0.7068	0.4797	57%	5.9393	0.0000	0.0252	0.9799	-4.8880	0.0000							
CAR (-20,+20)	-0.0002	0.0389	0.1400	0.8887	57%	2.8337	0.0046	-0.0244	0.9805	-2.2044	0.0275							
CAR (-20,+30)	-0.0042	0.0503	-0.3520	0.7248	52%	2.2828	0.0224	-0.0212	0.9830	-1.7603	0.0784							
CAR (-1,0)	0.0029	0.0154	2.1576	0.0310	52%	-2.8147	0.0049	1.9435	0.0520	0.6236	0.5329							
CAR (-2,0)	0.0022	0.0162	1.3591	0.1741	67%	-2.6326	0.0085	1.1621	0.2452	0.9201	0.3575							
CAR (-5,0)	0.0044	0.0215	1.7448	0.0810	52%	-1.4038	0.1604	0.5913	0.5543	0.2642	0.7916							
CAR (-10,0)	0.0011	0.0249	0.7183	0.4726	43%	-1.1269	0.2598	0.2175	0.8278	0.4785	0.6323							
CAR (-20,0)	-0.0001	0.0247	-0.0352	0.9719	38%	-0.2893	0.7724	0.2735	0.7845	-0.5221	0.6016							
CAR (0,+1)	0.0022	0.0163	1.6777	0.0934	57%	1.0922	0.2747	2.8734	0.0041	-3.3400	0.0008							
CAR (0,+2)	0.0040	0.0218	2.2878	0.0221	67%	0.5727	0.5669	1.9273	0.0539	-2.4804	0.0131							
CAR (0,+5)	-0.0001	0.0210	-0.0906	0.9278	62%	5.2748	0.0000	1.0546	0.2916	-5.8392	0.0000							
CAR (0,+10)	0.0010	0.0297	0.4606	0.6451	52%	7.8406	0.0000	0.3075	0.7585	-6.9766	0.0000							
CAR (0,+20)	0.0003	0.0349	0.3771	0.7061	57%	3.1685	0.0015	-0.0714	0.9431	-2.3729	0.0176							
CAR (0,+30)	-0.0038	0.0455	-0.3021	0.7626	43%	2.2770	0.0228	-0.0510	0.9593	-1.6758	0.0938							

**TABLE 3.19: CAR for Targets: Cash, Mixed, and Equity Deals.**

The table presents results of the event study for a sample of targets from 41 Pure Cash deals, 11 Mixed settlement deals, and 22 Equity deals. Abnormal returns are computed individually for targets with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method. In panel A we report the results for the target Cumulative Abnormal Returns in Cash deals and Mixed Deals, while in Panel B we present the results for the targets in Equity Deals. We also report in Panel B the Mean Difference Returns tests of significance between every two of the various sub-samples

**Panel A**

<b>Cash Deals</b>	<b>N = 41</b>					<b>Mixed</b>				
	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>
CAR (-1,+1)	0.0346	0.0692	8.7591	0.0000	64%	0.0634	0.0470	21.8596	0.0000	91%
CAR (-2,+2)	0.0393	0.0939	8.2066	0.0000	73%	0.0653	0.0528	17.4486	0.0000	82%
CAR (-5,+5)	0.0508	0.1087	-16.6718	0.0000	68%	0.0595	0.0494	10.7373	0.0000	82%
CAR (-10,+10)	0.0698	0.1255	-28.4452	0.0000	68%	0.0550	0.0667	6.9554	0.0000	82%
CAR (-20,+20)	0.0822	0.1394	-13.3805	0.0000	73%	0.0653	0.0761	6.4840	0.0000	73%
CAR (-20,+30)	0.0802	0.1381	-11.9048	0.0000	70%	0.0607	0.0733	5.4852	0.0000	73%
CAR (-1,0)	0.0177	0.0551	31.8151	0.0000	52%	0.0462	0.0428	19.2130	0.0000	91%
CAR (-2,0)	0.0208	0.0553	27.0734	0.0000	64%	0.0458	0.0431	15.6121	0.0000	82%
CAR (-5,0)	0.0250	0.0560	20.2717	0.0000	64%	0.0399	0.0407	9.7703	0.0000	82%
CAR (-10,0)	0.0343	0.0658	16.7406	0.0000	68%	0.0383	0.0474	6.8395	0.0000	73%
CAR (-20,0)	0.0464	0.0765	7.7872	0.0000	61%	0.0545	0.0674	7.4575	0.0000	82%
CAR (0,+1)	0.0334	0.0684	10.1203	0.0000	64%	0.0590	0.0439	24.8392	0.0000	91%
CAR (0,+2)	0.0350	0.0918	9.0022	0.0000	70%	0.0614	0.0479	21.0227	0.0000	91%
CAR (0,+5)	0.0423	0.1065	-24.8277	0.0000	70%	0.0614	0.0482	14.7444	0.0000	82%
CAR (0,+10)	0.0520	0.1176	-42.7363	0.0000	68%	0.0586	0.0618	10.1389	0.0000	82%
CAR (0,+20)	0.0523	0.1226	-16.8525	0.0000	61%	0.0526	0.0614	6.9351	0.0000	73%
CAR (0,+30)	0.0503	0.1238	-13.7521	0.0000	64%	0.0480	0.0601	5.2866	0.0000	73%

**TABLE 3.19 Panel B: CAR for Targets: Cash, Mixed, and Equity Deals.**

We report in Panel B the Cumulative Abnormal returns for targets in 22 Equity deals as well as the Mean Difference Returns tests of significance between every two of the various sub-samples.

Event Window	Equity				Cash vs. equity				Mixed vs. Equity				Cash vs. Mixed			
	N = 22				Mean Difference Tests of Significance				Mean Difference Tests of Significance				Mean Difference Tests of Significance			
	Mean Return	STD Dev	Z-Test	P-Value	% Pos	Z-Test	P-Value	Z-Test	P-Value	Z-Test	P-Value	Z-Test	P-Value	Z-Test	P-Value	
CAR (-1,+1)	0.0090	0.0239	4.1014	0.0000	65%	-1.0782	0.2810	-8.9376	0.0000	8.8806	0.0000					
CAR (-2,+2)	0.0152	0.0303	4.9562	0.0000	70%	-0.3807	0.7034	-5.0916	0.0000	5.2409	0.0000					
CAR (-5,+5)	0.0107	0.0336	2.1998	0.0278	61%	3.5055	0.0005	-2.2604	0.0238	5.1866	0.0000					
CAR (-10,+10)	0.0163	0.0418	2.5258	0.0115	65%	4.1127	0.0000	-0.9211	0.3570	4.2027	0.0000					
CAR (-20,+20)	0.0180	0.0471	2.0542	0.0400	70%	1.4937	0.1353	-0.6416	0.5211	1.8603	0.0628					
CAR (-20,+30)	0.0136	0.0542	1.4571	0.1451	57%	1.1497	0.2503	-0.5093	0.6105	1.4487	0.1474					
CAR (-1,0)	0.0010	0.0156	0.9476	0.3433	43%	-12.7536	0.0000	-10.7057	0.0000	1.7164	0.0861					
CAR (-2,0)	0.0036	0.0182	1.6120	0.1070	65%	-8.4861	0.0000	-6.8223	0.0000	0.8146	0.4153					
CAR (-5,0)	0.0043	0.0233	1.2909	0.1968	52%	-4.4654	0.0000	-2.9525	0.0032	-0.2646	0.7913					
CAR (-10,0)	0.0024	0.0253	0.7404	0.4590	61%	-2.8026	0.0051	-1.5549	0.1200	-0.4904	0.6239					
CAR (-20,0)	-0.0009	0.0302	-0.1240	0.9013	52%	-1.0260	0.3049	-1.3444	0.1788	0.6635	0.5070					
CAR (0,+1)	0.0061	0.0224	3.5920	0.0003	65%	-2.1798	0.0293	-12.8745	0.0000	12.3046	0.0000					
CAR (0,+2)	0.0096	0.0252	4.3916	0.0000	70%	-1.0259	0.3049	-8.4463	0.0000	8.3870	0.0000					
CAR (0,+5)	0.0045	0.0276	1.4084	0.1590	61%	6.4535	0.0000	-4.5828	0.0000	10.0068	0.0000					
CAR (0,+10)	0.0120	0.0344	2.5433	0.0110	61%	8.2331	0.0000	-2.0533	0.0400	8.6409	0.0000					
CAR (0,+20)	0.0170	0.0474	2.8451	0.0044	61%	2.6740	0.0075	-0.8772	0.3804	3.0352	0.0024					
CAR (0,+30)	0.0126	0.0543	1.8481	0.0646	61%	1.7274	0.0841	-0.5836	0.5595	1.9791	0.0478					

**TABLE 3.20: CAR for Acquirers: Cash, Mixed, and Equity Deals.**

The table presents results of the event study for a sample of acquirers from 40 Pure Cash deals, 16 Mixed settlement deals, and 21 Equity deals. Abnormal returns are computed individually for acquirers with the OLS market model using for each deal the DATASTREAM bank sector index. Regression parameters are estimated from -210 to -21 days where day 0 is the day the deal was first announced to the public. Tests of significance are calculated from standardised abnormal returns using the Dodd and Warner (1983) method. In panel A we report the results for the acquirer Cumulative Abnormal Returns in Cash deals and Mixed Deals, while in Panel B we present the results for the acquirers in Equity Deals. We also report in Panel B the Mean Difference Returns tests of significance between every two of the various sub-samples.

**Panel A**

<b>Cash Deals</b>	<b>N = 40</b>					<b>Mixed</b>					<b>N = 16</b>
	<b>Event Window</b>	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	
<b>CAR (-1,+1)</b>	-0.0018	0.0138	-1.0464	0.2954	43%	-0.0022	0.0149	-0.1852	0.8530	50%	
<b>CAR (-2,+2)</b>	-0.0001	0.0160	0.7316	0.4644	45%	0.0007	0.0291	1.1240	0.2610	38%	
<b>CAR (-5,+5)</b>	-0.0038	0.0246	-0.1217	0.9032	45%	-0.0037	0.0195	-0.1854	0.8529	31%	
<b>CAR (-10,+10)</b>	-0.0028	0.0264	0.0683	0.9456	50%	-0.0065	0.0255	-0.5587	0.5764	31%	
<b>CAR (-20,+20)</b>	-0.0016	0.0371	0.3374	0.7358	58%	-0.0069	0.0326	-0.4056	0.6850	44%	
<b>CAR (-20,+30)</b>	-0.0049	0.0431	-0.5132	0.6078	53%	-0.0186	0.0471	-1.3636	0.1727	38%	
<b>CAR (-1,0)</b>	0.0005	0.0089	0.2424	0.8085	53%	-0.0016	0.0065	-0.3204	0.7487	31%	
<b>CAR (-2,0)</b>	0.0013	0.0093	0.6103	0.5417	53%	-0.0022	0.0087	-0.3348	0.7378	25%	
<b>CAR (-5,0)</b>	-0.0008	0.0117	-0.2265	0.8208	48%	0.0015	0.0132	1.2008	0.2298	44%	
<b>CAR (-10,0)</b>	-0.0036	0.0144	-1.0175	0.3089	48%	-0.0006	0.0160	0.5610	0.5748	44%	
<b>CAR (-20,0)</b>	-0.0018	0.0245	-0.1822	0.8554	55%	0.0033	0.0203	0.8956	0.3705	63%	
<b>CAR (0,+1)</b>	-0.0025	0.0126	-1.6851	0.0920	48%	-0.0018	0.0148	-0.1966	0.8441	63%	
<b>CAR (0,+2)</b>	-0.0016	0.0157	0.2026	0.8395	48%	0.0017	0.0276	1.5490	0.1214	63%	
<b>CAR (0,+5)</b>	-0.0032	0.0243	-0.0313	0.9750	40%	-0.0063	0.0178	-1.6193	0.1054	38%	
<b>CAR (0,+10)</b>	0.0005	0.0238	1.0431	0.2969	50%	-0.0071	0.0212	-1.4566	0.1452	50%	
<b>CAR (0,+20)</b>	-0.0001	0.0266	0.6040	0.5459	48%	-0.0113	0.0255	-1.5519	0.1207	31%	
<b>CAR (0,+30)</b>	-0.0034	0.0323	-0.5492	0.5829	43%	-0.0230	0.0439	-2.5598	0.0105	25%	

**TABLE 3.20 Panel B: CAR for Acquirers: Cash, Mixed, and Equity Deals.**

We report in Panel B the Cumulative Abnormal Returns for acquirers in 21 Equity deals as well as the Mean Difference Returns tests of significance between every two of the various sub-samples.

<b>Equity</b>		<b>N = 21</b>			<b>Cash vs. equity</b>		<b>Mixed vs. Equity</b>		<b>Cash vs. Mixed</b>		
<b>Event Window</b>	<b>Mean Return</b>	<b>STD Dev</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>% Pos</b>	<b>Mean Difference Tests of Significance</b>		<b>Mean Difference Tests of Significance</b>			
						<b>Z-Test</b>	<b>P-Value</b>	<b>Z-Test</b>	<b>P-Value</b>	<b>Z-Test</b>	<b>P-Value</b>
<b>CAR (-1,+1)</b>	0.0078	0.0301	4.2678	0.0000	48%	2.3497	0.0188	1.7009	0.0890	-0.2325	0.8161
<b>CAR (-2,+2)</b>	0.0074	0.0330	3.1508	0.0016	52%	0.9491	0.3426	0.5479	0.5837	-0.2500	0.8026
<b>CAR (-5,+5)</b>	0.0108	0.0313	2.1342	0.0328	71%	0.5426	0.5874	0.4653	0.6417	0.0276	0.9780
<b>CAR (-10,+10)</b>	0.0054	0.0469	1.0400	0.2983	48%	0.1750	0.8611	0.2411	0.8095	0.1110	0.9116
<b>CAR (-20,+20)</b>	0.0051	0.0500	0.6248	0.5321	52%	0.0481	0.9616	0.1119	0.9109	0.0817	0.9349
<b>CAR (-20,+30)</b>	0.0018	0.0622	0.1138	0.9094	48%	0.0551	0.9561	0.1543	0.8774	0.1230	0.9021
<b>CAR (-1,0)</b>	0.0067	0.0286	4.8277	0.0000	57%	2.6638	0.0077	2.4155	0.0157	0.2831	0.7771
<b>CAR (-2,0)</b>	0.0054	0.0283	3.2579	0.0011	48%	1.3164	0.1880	1.3825	0.1668	0.3517	0.7251
<b>CAR (-5,0)</b>	0.0106	0.0293	3.8689	0.0001	67%	1.3333	0.1824	0.6693	0.5033	-0.4637	0.6428
<b>CAR (-10,0)</b>	0.0072	0.0369	2.1914	0.0284	52%	0.7150	0.4746	0.3071	0.7588	-0.3069	0.7589
<b>CAR (-20,0)</b>	0.0074	0.0400	1.3131	0.1891	43%	0.2554	0.7984	0.0412	0.9671	-0.1864	0.8521
<b>CAR (0,+1)</b>	0.0050	0.0290	3.2975	0.0010	43%	2.5872	0.0097	1.6380	0.1014	-0.5194	0.6035
<b>CAR (0,+2)</b>	0.0059	0.0340	3.1762	0.0015	57%	1.4163	0.1567	0.5322	0.5946	-0.6933	0.4881
<b>CAR (0,+5)</b>	0.0041	0.0291	0.6942	0.4876	48%	0.2370	0.8127	0.6844	0.4937	0.5519	0.5810
<b>CAR (0,+10)</b>	0.0021	0.0357	0.4814	0.6302	43%	-0.0670	0.9466	0.4263	0.6699	0.5393	0.5897
<b>CAR (0,+20)</b>	0.0016	0.0375	0.4544	0.6496	48%	0.0030	0.9976	0.3203	0.7487	0.3567	0.7214
<b>CAR (0,+30)</b>	-0.0017	0.0501	-0.1987	0.8425	43%	0.0290	0.9769	0.3229	0.7468	0.3358	0.7370

We observe from table (3.18) that for deals settled in cash the weighted average returns are positive and significantly different from zero in most of the event windows we examined, the returns persist in the longer event window and peaks in the (-20,30) event window at 1.52%. These returns for cash settled deals are higher than the returns earned in deals settled in pure equity exchange in almost all the event windows except the (-5,0) where the mean difference return is not significantly different from zero anyway (see table 3.18 Panel B). On the other hand, these returns are lower than the returns found for deals settled in a mix of cash, equity and loan notes in most of the event windows, but not for the long period event windows, such as the (-10,10), (-20,20) and (-20,30) windows. That is, the returns for mixed deals do not persist more than 10 days after the merger announcement. These findings for the weighted-average returns are driven by the target shareholders returns, which are higher than returns for equity deals but lower than the gains achieved by shareholders in mixed deals in short event windows (table 3.19). Again we find that the target shareholders returns in cash deals are persistently higher than in mixed deals for large event windows beyond 21 days around the merger announcement and peaking at 8.2% in the (-20,20) window.

However, considering the acquirer shareholders returns, we found that in cash and mixed deals acquirer shareholders incur negative returns (table 3.20), which are not significantly different from zero except for the (0,30) event window for mixed deals, where the returns to acquirers drop to -2.3% (significant at the 5% level). On the other hand the acquirers shareholders in equity deals earn positive returns on average that accumulate to their highest level of 1% in the (-5,5) event window. These returns



to acquirer shareholders in equity deals are not significantly different from zero for all the event windows that we examined 5 days beyond the announcement of the merger. Our findings of higher returns in cash deals compared to equity deals are consistent with previous findings in the literature. Some studies in the banking literature reported that both returns to target shareholders and weighted-average returns, in cash deals are higher than in equity exchange offers (Baradwaj et al., 1990). In addition Beatty et al., (1987) and Rogowski and Simonson (1987) have found a positive relationship between cash transactions and the bid premium. Similar findings have been reported for non-banking mergers, e.g. Gordon and Yagil (1981); Wansley, Lane and Yang (1983); Eckbo and Langohr (1986); Niden (1986); Huang and Walkling (1987); Franks, Harris and Mayer (1988); Queen (1989); Franks, Harris and Titman (1991). On the other hand Cornett and De (1991a, 1991b) find no statistically significant difference in the excess returns earned in bank mergers involving cash offers and stock offers.

Our findings of positive returns to acquirers in equity deals are consistent with findings, in the non-banking industry, by Allen and Sirmans (1987), Franks, Harris and Mayer (1988) and Chang (1998). Chang (1998) found, for stock bidders acquiring privately held targets, a two-day positive return of 2.64% and insignificant 0.09% return for cash bidders. On the other hand other studies in the literature, which reported contrasting findings, include Travlos (1987), Sudarsanam, Holl and Salami (1996), and Loughran and Vijh (1997). However, when we investigated every individual acquirer returns we were able to identify two outliers where the abnormal returns were highly positive. When we removed these two outliers (TSB bank and UBS), we observed overall negative average returns for the acquirers shareholders in

equity deals, a result which is consistent with the majority of the studies in the literature.

We, finally, argue that the higher abnormal returns observed in mixed deals could be due to the small size of the sub-sample of mixed deals of 11 targets and the very small percentage of targets with negative abnormal returns, which drove the average CAR to be higher than the CAR in cash deals.

### **3.6 Conclusion.**

In this chapter we used event study methodology to examine the market reaction to 102 merger announcements in the European financial services industry between 1987 and 1999; we report positive returns for targets in various event windows that we examined, while the returns to acquirers varied across the deal type and the various event windows. We find that bank to bank deals are more rewarding than cross-product deals that are based on diversifying the scope of the banks operations into insurance business or brokerage and securities services, and that merger deals earn higher returns than acquisition deals. Our results confirm the findings of Vander Venet (1999a) in a study that examined the post-merger performance of a sample of European banks merger between 1988-1992.

Contrary to Cybo-Ottone and Murgia (2000), we find that the market reacts more positively to cross-border mergers than to national mergers, except for the announcement period event window (-1,0) where the market believed that marriages based on gaining market power are more profitable than those based on geographical

diversification. We also found that higher returns are generated for deals settled in a combination of cash, equity and loan notes compared to cash deals, while equity settled deals generating the lowest return.

Our findings seem consistent with the argument that we showed earlier in chapter two that the intense competition and the pressure on profitability are encouraging banks to consolidate their market position. Banks seem to have planned to benefit from in-market consolidation and mergers of equal deals to exploit scale economy and synergistic gains rather than economies of scope.

On the other hand one remarkable finding is the low positive abnormal returns to target shareholders as compared to other findings in the literature of bank merger. The high competition in the market and the pattern of decreasing profitability in the banking industry in Europe is spreading a gloomy picture of the future of performance in general. This fact is urging acquirers to be cautious in bidding for target banks; hence they are not overbidding compared to the USA bank mergers. We argue that the objective from these bank mergers is to consolidate market position and improve efficiency in order not to suffer from profitability deterioration. Having said that and since the low positive target returns in the literature is peculiar, we believe it is quite interesting to examine the factors that make some target banks earn higher returns than other targets. Therefore, our next step is to search for the determinants of target returns. We dedicated chapter four to accomplish this task.

## **CHAPTER FOUR:**

### **DETERMINANTS OF TARGET RETURNS**

#### **4.1 Introduction.**

After we examined the abnormal returns associated with bank mergers in Europe, we also examined the effect of the deal characteristics on the target and acquirer returns and on the weighted-average returns. We observed low positive returns to target shareholders and explained that these findings stem from the fact that acquirers are not encouraged to pay high prices for target banks since the profitability of the financial services industry in Europe is under a great pressure coming from the increased competition. The competition is also expected to be more intense as the financial services industry is still undergoing a long restructuring process, which is mainly represented by more consolidation in the market (Vander Venet, 1999a). We will now indulge more deeply into the analysis in order to understand and try to shed some light on the variability of the returns to targets. In other word, we try to explain cross-sectional variation in these returns, by examining, in addition to deal characteristics, the financial determinants of target banks abnormal returns in European mergers.

The importance of doing this analysis stems from the fact that we observed a gap in the literature on European bank mergers. Moreover, most of the studies in the USA

tend to examine the determinants of merger premium rather than the determinants of target excess returns, and even these studies are not numerous and do not provide conclusive evidence for the USA, let alone for Europe.

The rest of this chapter is structured as follows: we discuss the findings of some of the studies in the USA that examined the determinants of merger returns and premium paid in section two. In section three we explain the methodology we use and the sample design, in section four we present the determinants that we use to predict the target return. We report our findings in section five and we conclude in section six.

## **4.2 Review of the previous empirical evidence.**

Many studies have examined the financial determinants of firms engaged in mergers. One of the early ones is Palepu (1986) who compares 163 non-financial firms that were acquired during 1971 and 1979 with 256 firms that were not acquired. He found that the target firms were characterised by lower growth, lower liquidity, and lower leverage than the non-acquired firms. Some other studies, discussed below, examined the determinants of the merger premium and searched for certain financial characteristics before merger.

Those studies reached contrasting conclusions in many of the financial characteristics that they examined.

The evidence reported by researchers on the effect of profitability is mixed. Palia (1993) and Beatty et al (1987) find a positive relationship between the target's profitability and the bid premium, whereas Cheng et al., (1989), Rhoades (1987),

Rogowski and Simonson (1989) and Houston and Ryngaert (1994) do not find any significant relationship. Fraser and Kolari (1987) also find a significant relationship, which is more pronounced in banks with assets of less than \$100 Million. Cheng et al., (1989) find also a negative relationship between the bid premium and the acquirer's profitability, whereas Rhoades (1987) reports no significant relationship. On the other hand, Wall and Gup (1989) find a negative relationship between the excess returns earned by the acquirer and the target's profitability.

Banks' capital ratios have also been examined. Fraser and Kolari (1987), Palia (1993), and Beatty et al (1987) find a negative relationship between the target's capital-to-assets ratio and the bid premium, although Rhoades (1987) and Rogowski and Simonson (1989) do not find any significant relationship. The negative relationship between the bid premium and the capital-to-assets ratio, found in Fraser and Kolari (1987), Palia (1993), and Beatty et al (1987), might be explained by acquirers considering high capital-to-assets ratio as a negative point since there is idle capital which is not invested in the market.

Evidence is also mixed concerning the loan quality. Cheng et al., (1989) find that the percentage of chargeoffs to total loans<sup>43</sup> in a target bank is positively related to the bid premium, whereas Rogowski and Simonson (1987) find that loans to earning assets ratio is positively related. However, Beatty, Santomero and Smirlock (1987) find that acquirers paid less premium for targets with high (loan loss allowance + equity capital) to total assets, but Palia (1993) found no relationship using the chargeoffs to assets and the loan loss provisions to assets ratios.

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<sup>43</sup> Cheng et al., (1989) use the chargeoffs to total loans as a proxy for the loan quality and it is the loan losses to total loans.

On the other hand, studies that examined the target growth rate (Rhoades, 1987; Cheng et al., 1989; Rogowski and Simonson, 1989; and Palia, 1993) did not find a significant relationship with the bid premium, and Wall and Gup (1989) did not find a significant relationship between the target growth rate and the target abnormal return. From these findings it seems that the target growth rate is not an attractive factor for acquirers - possibly because as the 'higgeldy-piggeldy growth' literature shows, growth rates tend not to be sustainable over time. Acquirers would probably put more importance on other performance-related factors such as the quality of assets or profitability or even the presence in certain business sectors such as retail loans or commercial loans.

The relative size target to acquirer was also examined; Palia (1993), Rogowski and Simonson (1989), and Cheng et al., (1989), found a negative relationship between the bid premium and the relative size of target to acquirer. On the other hand Lobue (1984), Trifts and Scanlon (1987), James and Weir (1987a), and Kaen and Tehranian (1989) reported a positive relationship between the acquirer's excess returns and the relative size target to acquirer, while other studies reported a negative or insignificant relationship (Wall and Gup 1989; Cornett and De 1991a). High target to acquirer assets might be seen as a negative point since large targets may involve a great challenge for the acquiring firms to transfer its own culture and invest in technology, however when the acquirer excess return is found to be positively related to the relative size target to acquirer this can be explained as large targets provide the opportunity to achieve scale economies which may not be achievable if the target is not large enough compared to the acquirer.

Other studies incorporated other non-financial characteristics in the analysis, for example: Beatty, Santomero and Smirlock (1987), and Rogowski and Simonson (1989) found a positive relationship between cash transactions and the bid premium. This finding is consistent with higher target abnormal returns in cash deals than in equity deals.

Palia (1993) and Beatty et al., (1987) find a positive relationship between the bid premium and the restrictive branching legislation in the target bank's state. Palia (1993) also found a positive relationship between the bid premium and interstate merger deals, and he found evidence for the entrenchment hypothesis for target banks, and the diversification-control hypothesis<sup>44</sup> for the acquirer banks. That is, the relationship between the bid premium and the level of management ownership in the target banks was positive at low levels of ownership and then turned out to be negative at more than 48.32% of managerial ownership level. As for the acquirer bank management, the relationship of managerial ownership with the bid premium was negative and then changed to positive at more than 5.9% of management ownership.

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<sup>44</sup> Diversification in this context is the manager's career-risk diversification. Palia (1993) explains that managers of a bank generally have limited financial wealth and a stock of human wealth that is often industry specific and non-diversifiable. At low level of managerial ownership the managers' interest is still aligned with the shareholders' interest therefore the relationship between the merger premium and their ownership level is negative but when their ownership increases to a certain level, so that they become significant shareholders, they begin to hold a large undiversified financial portfolio in the bank. To reduce the risk of their undiversified financial portfolio the managers engage in mergers. The managers do not sell their stake in the market as they want to retain the benefit of controlling the bank. If managers value control, their incentive to diversify their undiversified financial portfolio increases as their ownership level increases, resulting in a higher merger premium. On the other hand the argument for the managers of the target bank is that the manager with low ownership is motivated to diversify his career risk through product and geographic diversification, as long as the acquirer assures the target manager of continued employment. Hence he would be more willing to accept a lower bid than a manager with a large stake in the bank who is more concerned with his financial stake and would consequently want a higher premium.



Finally, one main explanation for the contrasting findings of some of these studies may stem from the fact that they examine samples of different size, geographic location and period. For example, Cheng et al., (1989) studied 135 mergers in the Southeast region of the USA for the period 1981 to July 1986, Rhoades (1987) examined 1835 bank merger for the period 1973 to 1983, while Fraser and Kolari (1987) analysed 132 bank mergers in 1985 only. Moreover, the method of calculating the financial variables might drive the results as well for example, Cheng et al., (1989) used five-year pre-merger average of target banks profitability, they also used growth variables calculated as the end of the prior year's values divided by the variables' values five years prior to the merger. Whereas Palia (1993) used the return on assets (ROA) for one year pre-merger and the average growth over the five years preceding the merger.

We also believe that one main disadvantage of these studies is that they defined the bid premium as the ratio of the deal value to the book value of assets and not to the market value of assets, the reason being that their samples included banks which are not publicly listed in the stock exchange.

### **4.3 Sample design and Methodology.**

#### **4.3.1 Sample Design.**

We start by matching targets and acquirers data from the initial sample that we studied in the previous chapter. That is, 76 targets and acquirers that merged between

Jan 1987 and Nov 1999 in Europe. The next step was to search for the accounting data for these banks and firms one year before merger. Our main data sources were the FitchIbca BankScope CD and the annual reports available on Laser D. Although our sample comes for various countries with differing accounting regulations, we believe the accounting data are comparably consistent across the whole sample for two reasons. The first is that the financial statements in FitchIbca BankScope CD are reported in a unified global format. The second reason is that the data that we collected from other sources, that is the Lazer D, was added to the FitchIbca database, hence it was converted automatically and instantly to the same unified global format, using built-in software provided by the BankScope CD<sup>45</sup>. Therefore, the issue of differing accounting regulation is not a source of concern in our sample. Because accounting data was not available for all the merging parties in our sample, the final number of deals dropped to 66 deals for which we have all the data needed for the analysis in this chapter.

### **4.3.2 Descriptive Statistics (the Ex-ante condition).**

In Table (4.1) we report descriptive statistics for our sample and observe that in terms of size acquirers are much larger than targets, which is consistent with the evidence of non-bank mergers as well. However, regarding pre-merger performance, it seems acquirers are much more profitable than targets in terms of ROAA and ROE. This is consistent with the notion that targets are characterised by inefficient management which make them vulnerable to be taken over by more efficient management.

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<sup>45</sup> FitchIBCA BankScope CD is a major source of database for Banks financial statements, many papers have used this source including, Vander Vennet (1996), Bikker (1999), Maudos, Pastor, Perez and Quesada (1999a), and Vander Vennet (1996 and 1999a).

**TABLE 4.1: Descriptive Financial Data for the Sample of 66 Targets and Acquirers.**

Independent Variables	Target				Acquirer			
	Minimum	Maximum	Mean	Std. Deviation	Minimum	Maximum	Mean	Std. Deviation
<i>MV of Equity (ROAA) - %</i>	1.63	14,804.86	1,152.84	2,425.45	9.60	19,665.34	2,773.08	3,399.72
<i>ROE %</i>	-7.98	4.04	0.26	1.35	-1.04	2.38	0.50	0.62
<i>Cost to Income Ratio - %</i>	-410.25	30.99	-2.02	55.56	-29.18	34.56	10.17	11.69
<i>Net Interest Margin - %</i>	24.51	140.71	69.05	21.45	44.86	88.76	65.02	10.11
<i>Non Int Exp / Avg Assets - %</i>	0.15	13.71	2.66	2.28	0.11	5.38	2.33	0.97
<i>Total Capital Ratio - %</i>	0.25	8.88	3.03	1.96	-0.07	5.76	2.66	1.26
<i>Equity / Total Assets - %</i>	0.02	44.00	9.04	9.38	0.06	25.73	10.35	3.95
<i>Loan Loss Reserve / Gross Loans - %</i>	-1.49	36.03	4.88	6.37	0.05	19.35	4.69	2.71
<i>Loan Loss Prov / Net Int Rev - %</i>	0.00	13.94	3.02	2.93	0.00	9.33	3.53	2.21
<i>Total Customer Loans / Total Deposits %</i>	-28.08	174.01	25.97	34.29	-2.40	116.46	24.45	22.18
<i>Profitability Growth %</i>	0.22	6.96	1.09	1.25	0.04	2.62	0.79	0.40
<i>Total Assets Growth %</i>	-26.59	8.68	-0.57	4.34	-19.66	2.16	-0.42	2.96
<i>Total Equity Growth %</i>	-0.22	1.24	0.05	0.21	-0.22	0.43	0.08	0.14
<i>Total Deposits Growth %</i>	-1.23	10.63	0.23	1.42	-0.26	1.95	0.07	0.29
<i>Total Customer Loans Growth %</i>	-0.42	49.39	1.17	7.13	-0.23	0.30	0.06	0.13
<i>Market / Book Value of Equity (Q)</i>	-0.46	2.99	0.10	0.51	-0.18	0.43	0.08	0.14
<i>Net Int Rev / Avg Assets - %</i>	-1.79	3.34	1.12	0.81	0.06	16.26	1.18	2.07
<i>Oth Op Inc / Avg Assets - %</i>	0.14	10.83	2.38	1.85	0.09	4.30	2.11	0.83
	0.01	4.68	1.43	1.08	0.10	5.37	1.31	0.92

Moreover, looking at efficiency in terms of the 'Cost to Income' ratio and 'Non-Interest Expenses / Average Assets', it seems the same conclusion can be reached. These findings are consistent with findings reported by Berger and Humphrey (1992), Altunbas et al., (1995), Berger (1998), and Rhoades (1998) and is consistent with the inefficient management theory. However, concerning capitalisation, it seems that targets and acquirers are well capitalised (capital ratio is over 8%, as required by the Bank for International Settlement) with an observation that acquirers enjoy slightly higher capital ratios than the targets, which might imply that solid capitalisation might not be an attractive issue which acquirers may consider when merging or acquiring another bank as long as both have good capital base.

Loan quality seems also another factor of similarity between both parties, although acquirers have slightly higher 'Loan loss reserves / Gross loans' ratio, which may be attributable to a more conservative policy from the bank rather than a bad loan quality portfolio. On the other hand it seems that acquirers are not as aggressive as targets in terms of their exposure to the lending market since targets seem to have invested other financial resources on top of the deposits they have to grant loans and advances to the public. Examining this factor in line with a similar loan quality situation, we believe this might have been a factor that acquirers considered in order to decide on the merger decision. Acquiring banks with high loan to deposits ratio provides acquirers with an opportunity to increase their loan portfolio with a good loan quality portfolio in a relatively fast way. As for the growth history, it seems that targets are more aggressive in the market than acquirers in terms of assets and deposits growth. This is another means of faster growth for the acquirers through merging with targets which have a better history of growth. However, considering the Total Assets growth figure,

we notice that acquirers have been doing slightly better than targets. But taking this figure with the total customer loan growth figure, we observe that the part of assets that the acquirers have been increasing faster than the targets, is fixed assets and maybe investment in technology. Finally, in terms of market valuation with respect to book value of equity, it seems that acquirers and targets show, on average a Market / Book value of equity ratio which is very close to unity. We suspect that this ratio has any explanatory power for the motive of merger in general.

### **4.3.3 Methodology.**

We can gain more insights from examining the association between the magnitude of the abnormal returns earned by target banks and certain characteristics, financial and non-financial. Cross-sectional regression model is an appropriate tool to investigate this association and has been used by most of the studies that performed such an exercise before (e.g. Beatty et al., 1987, Fraser and Kolari, 1987, Cheng et al. (1989), and Palia, 1993).

The cross-sectional regression model that we used is the following:

$$CAR_i = \delta_0 + \delta_1 X_{1i} + \delta_2 X_{2i} + \dots + \delta_M X_{Mi} + \epsilon_i.$$

Where, CAR is the independent variable, which is the target (-20,0) CAR with  $i$  number of observations.

$X_{Mi}$  represents the dependent variables, that is, the various characteristics that we are examining through their association with the target CAR,  $i = 1, \dots, i$  is the number of observations, i.e. banks and firms in the sample, and  $M = 1, \dots, M$  is the number of characteristics. We discuss these factors and the theoretical reasoning for using them in the next section.

$\delta_M$  represents the regression coefficients that determine the explanatory power of each variable.  $\varepsilon_i$  is an error term of the regression equation.

To counter possible problems of multicollinearity we employ a test suggested by Belsley, Kuh and Welsch (1980). The eigenvalues and condition index<sup>46</sup> figures are reported in table (4.4), the rule being that if the condition index is less than 31.62 (square root of 1000), multicollinearity is not a problem for the independent variables in our model<sup>47</sup>.

We have also computed all standard errors  $\varepsilon_i$  using the heteroskedasticity-consistent method of White (1980)<sup>48</sup>.

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<sup>46</sup> We obtained the calculation of the Eigenvalues and Condition Index using the SPSS statistical package.

<sup>47</sup> This same test was also utilised by Davidson and Cheng (1997)

## 4.4 The Cross-Sectional Regression Variables

To search for the determinants of target abnormal returns, we look at a number of factors, which we explain below in more detail.

### a) Profitability Variables.

Profitability is the major determinant of performance and therefore target banks that are highly profitable are valuable in the market and attract a higher price from the acquiring banks. Therefore, someone would expect a positive relationship between the targets abnormal returns and its pre-merger profitability. The most popular profitability measures used in the literature are the ROA (Return On Assets, or Return On Average Assets) and the ROE (Return on Equity or Return On Average Equity). We use the ROA only, to reduce the problem of multicollinearity<sup>49</sup>, and not the ROE since the ROE might be misleading as banks have different leverage ratios cross-sectionally. Moreover, we also use the relative profitability growth of the target to the acquirer. This is another variable which we expect to be positively related to the target excess return since acquirers are willing to pay higher price for targets which outperform them in the market than targets which do not.

### b) Capital Adequacy Variables.

The capitalisation of a financial institution is one of the most important determinants of its soundness and stability as these institutions hold large amount of debts, mainly

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<sup>48</sup> To perform the White (1980) method of heteroskedasticity consistent t-statistics we used the econometrics package E-views. We also provide in Appendix B more explanation of the nature and the remedy procedure for multicollinearity and heteroskedasticity in the cross-sectional regression.

<sup>49</sup> The same procedure was followed by Cheng et al., (1989).

in the forms of deposits, as compared to non-financial institutions. Moreover, as financial institutions are also involved in credit granting and providing various financial services to the public, they are subject to risk taking in the process of operations. The risks taken by banks are, interest rate risks, market risk, credit risk, in addition to operational and technology risk, foreign exchange risk, sovereign risk, and liquidity risk<sup>50</sup>. The primary means of protection against the risk of insolvency and failure, created by one or all of the risks cited above, is the financial institution's capital. Regulation requires financial institutions to keep a minimum amount of capital as collateral against risk-taking activities. In early, 1989, in accordance with the international Basle agreement, a new set of capital requirements was introduced and then the Bank for International Settlement fully implemented two risk-based capital ratios on January 1, 1993. The table below shows the specifications of capital categories. An explanation of the two ratios follows.

**Table (4.2): Total Capital Ratio Standards<sup>51</sup>.**

<i>Zone</i>	<i>Total Risk-Based Ratio</i>		<i>Tier I Risk-Based Ratio</i>
1. Well Capitalised	10% or above	And	6% or above
2. Adequately capitalised	8% or above	And	4% or above
3. Undercapitalised	Under 8%	Or	Under 4%
4. Significantly undercapitalised	Under 6%	Or	Under 3%
5. Critically undercapitalised	2% or under	Or	2% or under

Total risk-based capital ratio = Total Capital (Tier I + Tier II)/ Risk-adjusted assets

<sup>50</sup> Check Saunders, A. Financial Institutions Management, a modern perspective, third edition, Mc-Graw-Hill, 1999 for a deep analysis and discussion of various risks in the financial institutions' business and methods to manage these risks.

<sup>51</sup> Saunders (1999).



Tier I capital ratio = Tier I capital (or Core capital)/ Risk-adjusted assets.

Tier I capital is defined as Common Shareholders' Equity plus Perpetual Preferred Stock plus minority interest in equity accounts of consolidated subsidiaries less Goodwill. Total Capital includes Tier I Capital plus a bank's loan loss reserves up to maximum of 1.25% of risk-adjusted assets plus various convertible and subordinated debt instruments. Risk-Adjusted Assets figure is comprised of two components: Risk-adjusted on balance sheet assets and Risk adjusted off balance sheet assets<sup>52</sup>.

A number of studies have incorporated capital ratios of the target banks into the analysis of its relationship with the bid premium. However, as far as we know none of the event studies have included the target or acquirer bank's capital ratios in their analysis. We, therefore, believe that acquirers might be attracted to acquire targets of high capitalisation and highly value their capital standing and soundness, therefore we expect a positive sign between the target abnormal returns and its capital ratio. On the other hand, acquirers might also consider that although banks with high capitalisation are stable and relatively safer than banks with lower capital ratios, yet they may see high capitalisation as a negative point in the sense that a high capital ratio might be an indication that the target bank is using capital inefficiently and therefore the expected sign is negative. This argument is consistent with the suggestions of Rogowski and Simonson (1987), Fraser and Kolari (1987), and Beatty, Santomero, and Smirlock (1987). In addition to the Total Capital Ratio, we also employ the relative Total Capital Ratio (Target to Acquirer)<sup>53</sup> to examine the effect of the relative capitalisation on the excess returns of the target banks.

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<sup>52</sup> The definitions are cited from Saunders, A. Financial Institutions Management, a modern perspective, third edition, Mc-Graw-Hill, 1999, pages 454 and 456.

**c) Loan Quality Variables.**

Loan quality is one of the major determinants of bank performance; acquirers would pay a higher price to add a good quality loan portfolio to their existing portfolio of investments. Previous studies have used many ratios as a proxy to measure the loan quality effect on the bid premium paid to target banks. The ratios which have been used include, Total Chargeoffs to Total Assets, Non-performing loans to Total Assets, and the ratio of Loan loss Provisions or Loan loss Reserves to Total assets. We use the ratio of Loan Loss Reserves to Gross Loans as the proxy for loan quality. We argue, as Palia (1993) did, that the expected sign is ambiguous, as a high ratio might signal that the remaining loan portfolio is of a dubious quality and therefore the expected sign would be negative. On the other hand, high ratio may also indicate a conservative policy by the target bank taking precautions for future losses. We also employ two more variables, the Loan Loss Provisions to Net Interest Revenue of the target and the relative ratio target to acquirer and we believe that the sign is also ambiguous for the same reasons.

**d) Deposits Utilisation Variables.**

In order to measure how the bank is making good use of the resources available on its balance sheet we introduce the ratio of Total Customer Loans to Total Deposits. Acquirers are willing to increase the efficiency of using the resources available for them and therefore they would be attracted to acquire targets with high ratio of Loans to Deposits. Therefore, we expect to find a positive relationship between the target excess returns and this variable. We do not know of any study that used this variable before.

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<sup>53</sup> This is the Total Capital Ratio of the target bank divided by that of the acquiring bank

**e) Growth Variables.**

Growth is one of the main concerns for managers and merger and acquisition is one of the ways for fast growth. Moreover, in the 1980's merger participants in the USA may well have placed more emphasis on asset growth and geographic market extension than cost efficiency as concluded by Berger and Humphrey (1992). We use the Relative Assets Growth ratio (target to acquirer) to measure how the growth of the target compared to the growth of the acquirer can affect the target excess return. In addition to achieving growth through merger, we believe it is also essential for acquirer to acquire targets with higher growth history compared to their own growth history, as this is also a proxy for management efficiency in the market. We, therefore, expect a positive sign of this variable in explaining the target excess returns.

**f) Efficiency Variables.**

Expected efficiency improvement provides part of the motivation for M&A (Calomiris and Karceski, 1998; Rhoades, 1998). In the USA, acquiring banks appear to be more cost efficient than target banks on average (Berger and Humphrey, 1992; Pilloff and Santomero, 1998; Cummins et al., 1999; Fried et al., 1999). On the other hand, similar evidence that profit efficiency is a motive for M&A were reported in European studies as well (Altunbas et al., 1995; Vander Vennet, 1999a; Focarelli et al., 1998). In the M&A literature studies have used various proxies to measure efficiency change associated with merger. Some of these proxies were 'Interest Expenses to Total assets', 'non-interest expenses to total assets' and 'total costs to total assets' (we provided in chapter 2 a review of the studies that examined the efficiency change after merger and the various measures they used). We use a very

popular and more general measure, which is regarded by the regulatory agencies as one of the main determinants for efficiency, that is, the 'Cost to Income' ratio. In order to measure the comparability of the target and acquirer efficiency we use the 'Relative Cost to Income' ratio (target to acquirer). Since we showed earlier previous evidence that acquirers plan to improve their efficiency as a result of the merger, it is then logical to assume that they will be paying a higher price for targets which are more efficient than they are. The higher this ratio is (i.e. the less efficient the target is compared to the acquirer) the lower the target excess return is. Therefore, we expect a negative relationship between the relative Cost to Income ratio (target to acquirer) and the target excess returns.

**g) Size Variables.**

The relative size variable has been included in many previous studies. The main purpose is to capture the ability of the acquirer to invest in change, technological, cultural...etc and to achieve cost-cutting measures in the target bank (Palia, 1994b). The challenge for the acquirer, to achieve those goals, would be higher if the target is larger compared to the acquirer bank. This argument is consistent with previous evidence found in Palia (1993), Rogowski and Simonson (1989), and Cheng et al., (1989), where a negative relationship was found between the bid premium and the relative size of target to acquirer. We employ the relative size effect into the analysis, and we use therefore the relative size of Market Value of Equity of the acquirer to the target. We would expect the coefficient to have a positive sign, that is, the larger the acquirer is compared to the target, the higher will be the target excess returns.

#### **h) Non-financial Variables.**

In addition to the financial characteristics we also incorporate dummy variables related to the deal characteristics, these are:

- Dummy for the product scope of the deal set equal to one if the deal is in-Market (i.e bank to bank), zero otherwise (i.e. cross product).
- Dummy for the geographic scope of the deal set equal to one if the deal is national, zero otherwise (i.e. cross border).
- Dummy for the legal aspect of the deal, set equal to one if it is an acquisition deal, zero if it is a merger deal.
- Two dummies for the payment method, a dummy set equal to one if the deal was paid for in cash, zero otherwise, and another dummy set equal to one if the deal was settled by a mix of cash, equity and loan notes, zero otherwise. The use of two dummies for the payment method is stemming for the fact that we are measuring the effect of three different payment methods, a similar procedure is found in Sudarsanam et al., (1996).

We provide a summary of these independent variables in table (4.3) with the expected sign of each one of them.

**TABLE 4.3: Independent Variables, Their expected relationship with the Target Abnormal Return**

<i>Variable definition</i>	<i>Variable name</i>	<i>Expected sign</i>	<i>Mean</i>	<i>Std. Deviation</i>
<i>Dummy in-Market or Cross Product</i>	D1	+	N.A	N.A
<i>Dummy National vs. Cross Border</i>	D2	-	N.A	N.A
<i>Dummy Acquisition or Merger</i>	D3	+	N.A	N.A
<i>Dummy Cash payment or not</i>	D4	+	N.A	N.A
<i>Dummy for Mixed settlement or not</i>	D5	+	N.A	N.A
<i>Return On Average Assets</i>	ROAA	+	0.2588	1.3471
<i>Total Capital Ratio - %</i>	TOTCAP	(+,-)	9.0390	9.3816
<i>Loan Loss Reserve / Gross Loans - %</i>	LLOSSRES	(+,-)	3.0151	2.9295
<i>Loan Loss Prov / Net Int Rev - %</i>	LLOSSPROV	(+,-)	25.9718	34.2880
<i>Total Customer Loans / Total Deposits</i>	LOA/DEP	+	1.0901	1.2527
<i>Relative Size MV Equity Bidder to target</i>	RELSIZE	+	20.8660	60.7656
<i>Relative Cost to Income ratio (Target – Bidder)</i>	RELC/I	-	0.9463	0.5266
<i>Relative Profitability Growth (Target – Bidder)</i>	RELPROFGTH	+	7.3966	27.4072
<i>Relative Assets Growth (Target – Bidder)</i>	RELASSGTH	+	0.4540	58.9812
<i>Relative Loan Loss Reserve/Gross Loan Target to Acquirer</i>	RELLOSSRES	(+,-)	34.9318	141.0737
<i>Relative Capital Ratio Target to Acquirer</i>	RELCAP	(+,-)	5.1801	27.3905

## 4.5 The Determinants of Target Returns.

The OLS (ordinary Least Square) estimate of the model is presented in Table (4.4). The signs of the coefficients related to the deal characteristics, as expected, are similar to our results in the bivariate analysis. The coefficient of the geographical scope dummy variable is significant at the 5% level, confirming earlier analysis results, where targets are earning high returns when they are taken over by acquirers from the outside their homeland. Meanwhile, another confirmation is also presented about the settlement of the deal, where targets who were paid in cash and in a mixture of cash equity and loan notes earned higher returns than those who were compensated by equity, both coefficients being significant at the 5% and 1% levels respectively. Although the other coefficients related to deals characteristics are not significantly different from zero, they confirm earlier results in chapter 3. As for the profitability factor, the coefficient of the ROAA is positive and highly significant-this result is similar to previous USA findings of Palia (1993), Fraser and Kolary (1987), and Beatty et al. (1987) who report a positive relationship between the bid premium and the profitability of the target bank. However, the coefficient of the relative profitability of the target to acquirer is positive, as expected, but not significant. In sum the profitability factor confirms that targets with high ROAA generate higher excess returns than targets with lower ROAA.

On the other hand, the capitalisation seems to be negatively related to the target returns, this result supporting the argument that acquirers see high capitalisation as a negative point which signals that targets with high Total capital ratios are not using their capital efficiently.

**TABLE 4.4: Determinants of Target Abnormal Returns.**

In this table we report results of a cross-sectional regression using the (-20,0) abnormal returns of the targets as a dependent variable and some explanatory variables related to the deal characteristics and to the financial characteristics of the target and the acquirer one year before merger. We calculate the t-statistics using White (1980) procedure to account for heteroskedasticity, we also test for multicollinearity and report the results in the last two columns.

Explanatory Variables	Coefficient estimates			Collinearity Statistics		
	t-Statistics	Sig. Level	Condition Index	Eigenvalue		
(Constant)	1.6361	0.1082	1.0000	7.5503		
D1	1.1788	0.2442	2.0120	1.8651		
D2	-2.4612	0.0174	2.2364	1.5097		
D3	1.1908	0.2394	2.6548	1.0712		
D4	2.4537	0.0177	2.7065	1.0308		
D5	3.3621	0.0015	2.7534	0.9959		
ROAA	3.3632	0.0015	2.9689	0.8566		
TOTCAP	-2.3042	0.0255	3.4441	0.6365		
LLOSSRES	1.8702	0.0674	4.2218	0.4236		
LLOSSPROV	1.3121	0.1956	4.9770	0.3048		
LOA/DEP	5.6260	0.0000	5.5784	0.2426		
RELSIZE	1.141	0.2594	6.5033	0.1785		
REL/	-3.7795	0.0004	7.4175	0.1372		
RELPROFGTH	1.5556	0.1262	9.8720	0.0775		
RELAASSGTH	4.551	0.0000	11.5871	0.0562		
RELLOSSRES	-2.7721	0.0079	12.7396	0.0465		
RELCAP	2.1343	0.0379	21.1558	0.0169		
<b>R<sup>2</sup></b>	52.90%					
<b>Adjusted R<sup>2</sup></b>	37.50%					
<b>F Statistics</b>	3.435	<b>P Value</b>	<0.000			

The t-Statistics are heteroskedasticity-consistent following White (1980) procedures.



The latter result seems sensible if we look at the Mean Total Capital ratios of both targets and acquirers in table (4.1) which shows that targets are more than adequately capitalised and that both targets and acquirers have almost similar ratios. Our results support the findings of Fraser and Kolari (1987), Palia (1993), and Beatty et al. (1987). The relative Total capital ratio is a significant factor which affects the target returns, as can be seen from the regression results, which supports the argument that targets which have higher capitalisation compared to their acquirers attract higher returns since their current capitalisation, when combined with the acquirer's, offers to the acquiring bank more opportunities to expand their investment and increase their loan portfolio in the market. But when we consider the Total capital ratio coefficient together with this coefficient it seems that there is a certain ceiling of capitalisation, which provides a source of comfort for the acquirer, so that targets which have a higher capital ratio than this ceiling are considered to be inefficiently utilising their capital base.

The loan quality coefficients support the argument that acquirers are interested in targets with a conservative policy regarding their credit assessment. We observe a positive and significant (at the 10% level) coefficient for the Loan Loss Reserves to Gross Loans which means that acquirers might be judging two main things. Firstly, acquirers are looking at the credit policy of the target and valuing a conservative credit policy, which takes into account any possible future losses in the loans portfolio. Secondly, they might also be valuing the management team of the target bank for good credit assessment skills and this might add to the benefit that the acquirers are expecting to gain by acquiring good quality intellectual capital. This result is consistent with Cheng et al., (1989), using the percentage of Charge-off to

total loans, and Rogowski and Simonson (1987), using the loans to earnings assets ratio. On the other hand the coefficient of the relative loan loss reserve to gross loans variable is negative and significant at the 1% level. We believe that if acquirers consider that a high loan loss reserves to gross loans ratio for the target bank signals a conservative and attractive credit policy, yet a ratio which is higher than their own ratio may, on the other hand, signal that the quality of the loan portfolio becomes scary and worth being scrutinised very carefully.

The ratio of target's Total Customer Loans to Deposits seems to be another factor, which positively affect the target's excess return. We think that this positive relationship is consistent with the finding that acquirers regard a high Total capital ratio as a negative point since they would prefer to acquire targets which are using their capital and their other liquid resources more efficiently in the market. A high Total customer loans to deposits ratio appears to be of very high significance for the acquirer since it reflects a fact that targets with higher lending ratios and more efficient deposits utilisation earn higher excess returns than other targets.

The relative asset growth (target to acquirer) seems to be another attractive factor for the acquirers. The coefficient is positive and significant at the 1% level, therefore, this suggests that a target's growth history is a determinant factor for earning higher excess returns. The assets growth of the target compared to the acquirer is considered by the acquirers as a driving force to increase profitability prospects and more presence in the market.

The coefficient of the relative Cost to Income Ratio is negative and highly significant, as we expected earlier, because acquirers tend to increase their efficiency by acquiring targets which are more efficient, leading to targets which are more efficient than acquirers generating higher excess returns. The relationship between the relative size (acquirer to target) and the target excess return is positive but the coefficient is not significant. Although the latter result is not significant, it is similar in direction to findings of Rogowski and Simonson (1989), Cheng et al., (1989), and Palia (1993) who find that the bid premium is smaller when the target is larger than the acquirer.

## **4.6 Conclusion.**

In this chapter we search for the determinants of target returns and perform a cross-sectional regression using the target (-10,0) CAR as the dependent variable and a set of variables related to the deal characteristics and to the target and the acquirer financial characteristics one year before merger. We run the regression on a sample of 66 bank mergers in Europe for which we could obtain all the data needed for the analysis.

The first observation is that our earlier findings of the impact of the deal characteristics on the target returns are confirmed in this exercise. Moreover, we find evidence that targets with higher profitability pre-merger earn higher returns than other targets, moreover, we find that targets with lower capitalisation than others seem to earn higher returns as well since they are assumed to be efficiently utilising their capital knowing that they are already adequately capitalised. On the other hand, high loan loss reserves to Gross loans for targets is seen as source of comfort for acquirers

as it implies a conservative policy by the target bank, and therefore these banks earn high returns too. As for the efficiency measure, it appears, as expected, that targets which are less efficient than their acquirers earn lower returns, and that when targets have high loans to deposits ratio they signal that they are efficient and aggressive in utilising their deposits resources and, therefore, they also earn higher returns than other targets.

We have, up to now found the evidence for varying target, acquirer, and aggregate returns according to the characteristics of deal (chapter 3), we also examined the determinants of the target returns. But these findings, although they shed some light on the likely returns taking in account some aspects related to the deal or to the parties financial status, yet we have not so far been able to decide what the motives for these bank mergers have been. Therefore, we tend to examine this area in the next chapter.

## **CHAPTER FIVE:**

### **EUROPEAN BANK MERGER MOTIVES.**

#### **5.1 Introduction.**

After we have examined the market reaction for M&A in the European banking industry, and have identified certain non-financial and financial determinants of target returns, we noticed a great variability of the returns according to various characteristics. We believe it is worth doing further analysis in order to determine what motivates banks to pursue growth strategies through M&A.

We have discussed various M&As motives in chapter 2, and noticed that M&A could be motivated by increasing shareholders wealth via many ways such as: synergy, improving efficiency, diversification, or market power. M&As could also be motivated by non value-maximising temptations of the acquirer management such as: agency or hubris. Perhaps the most popular of all these motives that have been advanced in the literature of M&As have been synergy, agency problem, and hubris.

One of the few studies that examined the M&A motives in the non-banking industry is Berkovitch and Narayanan (1993), while the evidence for the bank merger is limited to very few studies such as Zhang (1998) that used the same methodology as BN (1993) for the USA banking merger. Both studies, we believe they do not apply to the European context, for many of reasons, one being the differing regulation

governing the activities of the financial services industry in the USA and Europe, as we pointed out earlier in chapter 3. Therefore we can not draw from these two studies any conclusions to be applied on the European banking scenario. Having said that, we thought it is essential to help fill, even partially, the gap in the literature of M&As motives in the European banking industry.

In section two we discuss the earlier evidence in the M&As motives literature, in section three we propose the methodology we use. While we report our findings in section four, we conclude in section five.

## **5.2 Historical Evidence on Bank M&As Motives.**

The literature on merger motives utilised several proxies to examine the existence of one or several possible motives for merger. For example the finding of positive total gain of merger deals in a sample has been considered fair evidence for mergers being motivated by the achievement of synergistic gains (Bradley, Desai and Kim, 1988). The lack of positive acquirer gains, or even evidence of negative acquirer gain, has been thought of as indicating that these mergers are motivated by either agency or hubris (Malatesta, 1983) or that they provided support for managerial explanation (Nealy, 1987; Hawawini and Swary, 1990). Moreover, other researchers content that managers might engage in growth-oriented or empire building strategies in order to create a diversified portfolio within the firm to lower their employment risk (Amihud and Lev, 1981; Coffee, 1988).

Another bank-specific motive for growth is the concept of too-big-to-fail. But O'Hara and Shaw (1990) argue that this type of motive, joining the club of too-big-to-fail banks may be beneficial for the shareholders, therefore it is not totally consistent with an agency problem type of behaviour of the management.

Examining the motives for the European banking merger followed a path similar to all the other studies that is, researchers tried to derive conclusions from the findings of post-merger operating performance change or X-efficiency change.

Vander Venet (1996) found that in domestic majority-acquisitions the post-merger performance deteriorated and therefore, he deduces that defensive and managerial motives seem to dominate and observes that these mergers do not seem to benefit from synergistic effects and can not be explained by the efficiency theories. On the other hand in domestic mergers of equal partners Vander Venet (1996 and 1999a) reported improvement in the operational efficiency, the frontier efficiency measure, and the profit levels. Consequently he deduces that the operational and managerial synergies and scale economies are probable explanations for the recovery in performance. However, as for cross border mergers Vander Venet (1996) concludes that the acquisition of a foothold presence in foreign bank markets with growth opportunities may be the principal motivation since he did not find any evidence for improved performance.

Berkovitch and Narayanan (1993) summarised the various theories and motives of M&A into three main categories as shown in table (5.1).

**Table (5.1): Patterns of Gains Related to Takeover Theories.**

<i>The Merger Motive</i>	<i>Total Gains</i>	<i>Gains to Target</i>	<i>Gains to Acquirer</i>
<b>1. Efficiency or Synergy</b>	+	+	+
<b>2. Hubris ( winner's curse, overpay)</b>	0	+	-
<b>3. Agency problems and mistakes</b>	-	+	-

By definition, total gains are positive for synergy, zero for hubris, and negative for agency problems and so on. The event studies that examined the market reaction to M&As announcement have not been able to clearly distinguish among all three motives, cited above. The difficulty is that three motives may simultaneously exist in any sample (Berkovitch and Narayanan, 1993; Zhang, 1998). This problem is overcome by investigating the relation between target and total gains instead of depending on average gains (Berkovitch and Narayanan, 1993).

Having said that we explain the hypothesis proposed in Berkovitch and Narayanan (1993) and their methodology for examining M&As motives, which we adopt, in the following section.

### **5.3 Methodology.**

Berkovitch and Khanna (1990) show that the target gain is a function of the total gain, conditional on the takeover motive, and the acquirer gain is a function of the target gain, conditional on the takeover motive as well. Berkovitch and Narayanan (1993) summarised these relationships which we report in table (5.2) below<sup>54</sup>.

<sup>54</sup> Zhang (1998) departs from this argument and from the patterns of gains reported in table (5.1) to test the presence of the three major motives in US bank takeovers. They examined the relationship type



Berkovitch and Narayanan (1993) justify the implied relationships that in a synergy motivated merger the target and the acquirer would benefit from the synergy. Any increase in the total gain would lead to an increase in the target gain, which in turn implies an increase in the acquirer gain; thus the positive relationships in the table.

**Table (5.2): *The Implications of Different Hypotheses Regarding the Relation between Target Gain and Total and Acquirer Gains.***

<i>Correlation between</i>		
<i>Hypothesis</i>	<i>Target Gain and Total Gain</i>	<i>Acquirer Gain and Target Gain</i>
<b>Synergy</b>	Positive	Positive
<b>Hubris</b>	Zero	Negative
<b>Agency</b>	Negative	Negative

On the other hand, in an agency motivated merger, the increase in target gains is accompanied by a decrease in the total gain at the expense of the acquirer shareholders, where part of the gain is extracted to the benefit of the acquirer's management due to agency rent, moreover, since the acquirer gains are inversely related to the severity of the agency problem, the target and acquirer gains are also negatively correlated. But if synergy and agency motives are present in the sample, and since both motives have opposite predictions, the results (of the relationship between target and total gains) may either reflect the stronger of the two effects or

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between the target gains and the total gains, and the acquirer gain and the target gain, their findings confirmed the existence of synergy and hubris motives.

may show a zero correlation between target and total gains. In the latter case, the results could be misleading implying, erroneously, the presence of hubris motive.

To avoid this problem Berkovitch and Narayanan (1993) suggest using another test, that is, dividing the sample into two sub-samples based on the total gains whether they are positive and negative, and then examining the correlation between target and total gains, and between target and acquirer gains within each sub-sample. The logic for doing this is that in the case of agency motive, if it exists, it is more likely to be present in the mergers with total negative gains than in mergers with positive total gains.

However, in hubris there is a transfer of gain from the acquirer to the target as a result of overpayment, or winner's curse, no matter how much the target gain increases, yet the total gain is unaffected at approximately the zero level. Therefore, in hubris, there is no relation between the total gains and the target gain and the relationship between the target gain and the acquirer gain is negative.

We adopt this argument and follow the pattern of relationships as shown in the table (5.2) above. We use initially two regression models, as in Berkovitch and Narayanan (1993) and Zhang (1998), in order to test the relationships postulated above, these are:

$$\text{Target Gain} = \alpha_1 + \beta_1 (\text{Total Gain}) + \varepsilon \quad (1)$$

$$\text{Acquirer Gain} = \alpha_2 + \beta_2 (\text{Target Gain}) + \mu \quad (2)$$

We use the results we obtained in chapter three for 76 completed deals (results of the abnormal returns are reported in Table (3.5) Panel A). Target and acquirer gains are defined as the change in wealth of the shareholders of the target and acquiring banks or firms. The gains are computed in money terms. The target gain is the product of the target CAR in the 5-day event window (-2,2) and the target's market value of equity a month before the merger announcement. We compute the acquirer gain in a similar way. The total gain is, then, defined as the sum of the target gain and the acquirer gain. We also divide the sample into two sub-samples one with total negative gains and the other with total positive gains.

#### **5.4 European Bank Merger Motives-the New Evidence.**

Table (5.3) provides the estimates of the target and acquirer gains for the sample of 76 M&As deals in the European Financial services industry. We can see from the table that the mean target gain for the total sample of 76 deals is € 47 million (significant at the 1 % level), and the mean acquirer gain is € 18 million (significant at the 5 % level). In 67.4% of the cases targets earn positive gains, while in 47.37% of the cases, acquirer gains were positive.

The total gain, that is the sum of the target and acquirer gain, was positive in 64.47% of the cases. The latter finding is almost the same as in Zhang (1998) where he reports a 64% of the deals earning positive gains. This finding suggests that these positive total return deals were motivated by synergy, while the remaining 35.53% of the deals were motivated by either agency or hubris.

**TABLE 5.3: Summary of Euro Gains for 76 M&As Deals.**  
The Table Reports Gains for Targets, Acquirers and Total Gains for 76 Mergers between 1987 and 1999 (Millions of Euro)

<b>(-2,2) event window</b>	<b>Gains to</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>% Pos</b>	<b>Z Statistics</b>
<b>All (n = 76)</b>	<b>Target</b>	-785.021	1057.204	47.0919	67.40%	(10.2921)***
	<b>Acquirer</b>	-417.273	830.0686	18.0419	47.37%	(2.3601)**
	<b>Total</b>	-739.468	1262.897	65.1337	64.47%	(2.5788)***
<b>Positive Total Gains only (n = 47)</b>	<b>Target</b>	-59.4729	1057.204	80.75034	81.25%	(13.342)***
	<b>Acquirer</b>	-417.273	830.0686	22.16748	61.70%	(3.43545)***
	<b>Total</b>	0.116399	1262.897	104.6359	100.00%	(4.9333)***
<b>Negative Total Gains (n = 29)</b>	<b>Target</b>	-785.021	16.90361	-35.3406	37.93%	(-4.6956)***
	<b>Acquirer</b>	-112.295	45.55274	-13.6437	20.69%	(-3.3087)***
	<b>Total</b>	-739.468	-0.05939	-48.9843	0.00%	(-5.6493)***

(\*\*\*) Indicates significance at the 1 % level.

(\*\*) Indicates significance at the 5 % level.

On the other hand in 61.70% of the M&A deals with positive total gains, the acquirer gains were positive. This result is very close to the result reported by Berkovitch and Narayanan (1993) of 63.9%. Moreover, the sub-sample of negative total gains shows that the loss from M&A may be large, the mean total loss for this group being -€ 48.98 million. This loss is mainly attributable to losses for targets. When we investigate this sub-sample closely we notice that the majority of this negative gain is due to one major deal, apparently the deal with the minimum gain in the table, of target negative gain of -€ 785 million (this deal is the merger between Banesto and Banco de Santander on Jan 28, 1994).

When we remove this deal from the sub-sample of total negative gains then we observe that the mean total loss drops significantly to -€ 24.324 million and the target mean gain becomes -€ 8.566 million. Moreover, if we remove this one deal from the whole sample the mean total gain increases to € 75.86 million and the mean target gain becomes € 58.18 million.

In Table (5.4) we report the results of the regressions<sup>55</sup>. In panel A, we report the regression results of the target gain against the total gain, for the entire sample as well as for the sub-samples of total positive gains and total negative gains. For the entire sample the correlation between target gains and total gains is positive and statistically significant at the 1% level, the estimate of  $\beta$  is 0.626 ( $t = 3.746$ ).

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<sup>55</sup> We have also tested for autocorrelation in the samples using the Durbin-Watson  $d$ -statistic and found that autocorrelation is non-existent.

**TABLE 5.4: Relations between Target Gain and Total and Acquirer Gains**

Sample	Size	$\alpha$	$\beta$	$R^2$
<b>Panel A. Target Gain = <math>\alpha + \beta</math> (Total Gain) + <math>\varepsilon</math></b>				
All	76	6.349 (0.5651)	0.626 (3.746)***	62.40%
Positive Total Gains Only	47	20.211 (1.182)	0.595 (2.259)**	47.90%
Negative Total Gains Only	29	15.989 (3.029)***	1.048 (27.224)***	95.80%
<b>Panel B. Acquirer Gain = <math>\alpha + \beta</math> (Target Gain) + <math>\mu</math></b>				
All	76	18.152 (1.948)*	-0.00234 (-0.0097)	<0.00
Positive Total Gains Only	47	38.256 (2.953)***	-0.195 (-0.726)	5.10%
Negative Total Gains Only	29	-16.684 (-2.988)***	-0.086 (-6.737)***	16.70%

*The numbers in parentheses are White's (1980) heteroscedasticity-consistent t-statistics.*

*(\*\*\*) Indicates significance at the 1% level.*

*(\*\*) Indicates significance at the 5% level.*

*(\*) Indicates significance at the 10% level*

This result is consistent with the synergy hypothesis; the evidence of the synergy hypothesis persists with the two sub-samples of total positive gains and total negative gain. If we look at the intercept term, we notice that it is not significantly different from zero for the total sample and the sub-sample of the positive total gains. This tells that the target does not gain when the total gain is zero, which is consistent with the synergy hypothesis but not the hubris. On the other hand for the sub-sample of negative total gain the intercept is positive and significant at the 1% level, which suggests that the targets still gain even when the total gain is negative. This suggests a degree of hubris is present.

Panel B of table (5.4) provides the results of the regression between the acquirer and the target gains for the entire sample as well as for sub-samples of positive and negative total gain. For the entire sample, the coefficient between acquirer and target gains is negative, though not significantly different from zero. This seems to support the hubris hypothesis. The same result is obtained for the sub-samples of positive and negative total gains, but the coefficient is significant only in the sub-sample of negative total gains. On the other hand the intercept  $\alpha$  is positive and significantly different from zero in the total sample and the positive total gains sub-sample. This suggests that when the target does not gain, the acquirer is able to maintain a positive gain, in other words, this is consistent with the notion that without hubris the acquirer on average should be able to retain its synergy gains. Thus hubris may explain the results of positive average target gains and zero average acquirer gains. The key to explaining the negative total gains may lie in the statistically significant negative intercept in the sub-sample of negative total gains. In this sub-sample, the negative intercept, which is significant at the 1 % level, suggests that the acquirer loses even when the target does not gain. This implies that after adjusting for hubris, the acquirer in the sub-sample of negative total gains would still lose (to the acquirer management). This result implies that agency, along with hubris, may explain the bank takeovers with negative total gains, even though we do not observe it in the coefficient  $\beta$  since synergy is the dominating motive in these takeovers.

Although the gains in this sample are not highly dispersed around the mean, yet to ensure the robustness of our results to very limited outliers, we identified one major outlier earlier and removed it then we run the regressions one more time. The results we obtained are reported in Table (5.5) and provide support for the conclusions we

arrived at earlier since these results are not qualitatively different from the original results.

**TABLE 5.5: Relations between Target Gain and Total and Acquirer Gains, after adjusting for outliers in the sample.**

Sample	Size	$\alpha$	$\beta$	$R^2$
<b>Panel A. Target Gain = <math>\alpha + \beta</math> (Total Gain) + <math>\varepsilon</math></b>				
All	75	16.693 (2.239)**	0.547 (3.481)***	55.20%
Positive Total Gains Only	47	20.211 (1.182)	0.595 (2.259)**	47.90%
Negative Total Gains Only	28	2.039 (0.574)	0.436 (1.819)*	30.50%
<b>Panel B. Acquirer Gain = <math>\alpha + \beta</math> (Target Gain) + <math>\mu</math></b>				
All	75	17.133 (1.601)	0.0093 (0.028)	<0.00
Positive Total Gains Only	47	38.256 (2.953)***	-0.195 (-0.726)	5.10%
Negative Total Gains Only	28	-18.339 (-3.153)***	-0.301 (-1.456)	7.50%

*The numbers in parentheses are White's (1980) heteroscedasticity-consistent t-statistics.*

*(\*\*\*) Indicates significance at the 1% level.*

*(\*\*) Indicates significance at the 5% level.*

*(\*) Indicates significance at the 10% level*

## 5.5 Conclusion.

In this chapter we test the existence of three major motives of bank M&A: synergy, agency, and hubris by examining the relations between target and total gains and between acquirer and target gains. To perform this task we followed the same



methodology developed by Berkovitch and Narayanan (1993) and adopted later by Zhang (1998).

We report a positive and statistically significant relation between target gains and total gains for the entire sample and the two sub-samples of positive and negative total gains. This relation suggests that synergy, rather than agency, is the dominant motive for the M&A in the European financial industry. Our next step was to examine the simultaneous presence of hubris in isolation from the relation between acquirer gains and target gains. Although the coefficient is significantly different from zero in the negative total gains only, yet it carries a negative sign, which is consistent with the hubris hypothesis. The significantly positive intercept in the entire sample and the positive total gains sub-sample suggests that the acquirer gains should the target's gain be zero, that is without hubris the acquirer would be able to maintain his synergistic gain. Therefore, hubris may be the main explanation for observing positive target gains and zero or negative acquirer gains.

While evidence of hubris exists, these results suggest that agency is not a major motive in the European financial services takeovers. This claim may be reasonable due to the close monitoring that bank's mergers might be subject to from the supervision and regulatory bodies in their home country, in addition to the rare hostile takeovers, in this industry. Moreover, one factor that could help to measure the presence of agency related motives is by examining the acquirer returns subject to various managerial ownership scenarios, an exercise which is not possible at this stage since the data on ownership in such a diversified sample is almost impossible to obtain.

Finally, it is evident now that synergy has been a major motive in the European financial services M&As that took place between 1987 and Nov. 1999. But managers have always claimed that synergistic gains are possible and even certain, have they merged their firm with the other party, in order to convince stakeholders to bless their decision. Whether these synergistic gains are realised afterwards is another long lasting argument, which needs to be confirmed or rejected by examining the performance change few years after “the marriage” took place. So, did the merging parties live happily ever after? We examine the post-merger operating performance, in order to answer this question, in the following chapter.

## **CHAPTER SIX:**

### **THE POST-MERGER OPERATING PERFORMANCE**

#### **6.1 Introduction.**

The market valuation for the European mergers that we examined was positive, implying that the market anticipated shareholders value increase to be resulted out of these mergers. Consequently, the positive market reaction implied that synergy was the major motive in the European mergers. Moreover, the evidence of the synergy motive was confirmed in the previous chapter, but have these anticipated and planned synergistic gains been realised? Have the merging parties been able to improve their performance in the post-merger period? What are the sources of the performance change? Did the market, at merger announcement, correctly anticipate the post-merger performance change? Could the post-merger performance change be determined before merger, and if so, what are the characteristics of the merging parties that determine post-merger performance? We attempt to answer these questions in this chapter and we compare our findings with the earlier very limited evidence for European bank mergers.

We showed in chapter two that studies that examined the post-merger operating performance in USA reached in general a consistent conclusion that these mergers

failed to improve performance, with a few exceptions e.g. Healy et al., (1992) for non-bank mergers, and Cornett and Tehranian (1992) for bank mergers. However the evidence concerning European bank mergers has been so far limited to a couple of studies, viz Vander Venet (1996) and Vander Venet (1999a). These studies examined the same sample of bank mergers and concluded that domestic mergers of equal partners improved performance and that synergy and market power were the main sources of this improvement. In the next section we discuss the findings of a few studies in the bank merger literature, in section three we explain our methodology. Whereas in section four we report our findings, the answer to the questions that we proposed above, then we conclude in section five.

## **6.2 Previous Evidence on Post-merger Operating Performance.**

Healy, Palepu, and Ruback (1992) introduced a very interesting methodology to examine performance changes associated with take-overs in the USA. Their sample consisted of the largest 50 take-overs that took place between 1979 and 1984. They used the industry adjusted operating cash flow return on market value of assets as their metric to measure the change in operating performance from -5 to +5 years around the take-over year. The market value of assets at the beginning of each year after merger was adjusted to exclude the change in equity value of both parties at the merger announcement date. They also used industry-adjusted measures of accounting rates of return to search for the source of value change. The authors found that merged firms show significant improvement in asset productivity relative to their industries, leading to higher operating cash flow returns after merger. Median industry-adjusted

returns for the merged firms were 3% in the year after merger, 5.3% two years after, 3.2% three years after and 3% after four years, all significantly different from zero at the 10 % level of significance. Healy Palepu, and Ruback (1992) replicated their results using a different measure of the value of equity each year, a measure which they computed for the merged firms before and after merger, yet the results were robust and did not change<sup>56</sup>.

Pilloff (1996) examined mergers of publicly traded banking institutions for a sample of 48 mergers that took place between 1982 and 1991 in the USA by analysing the average level of operating performance and conducting an event study. The operating performance measures show little to no gain two years post merger compared to two years pre merger. Moreover, the cross sectional analysis showed that low target profitability, high target and acquirer total expenses, and high target absolute and relative size are correlated with subsequent performance improvements. Pilloff (1996) found also that value weighted abnormal returns are influenced by expense-related variables and concluded that the market values mergers which offer the greatest potential for cost reduction. While the findings of Pilloff (1996) that merger gains are modest to non-existent on average are consistent with the bulk of the literature, they are inconsistent with the work of Cornett and Tehranian (1992) who also analyse a sample of 30 mergers involving publicly traded banks in the USA between 1982 and 1987. Cornett and Tehranian find that post-merger performance improvements and value weighted abnormal returns at announcements are significantly positive and they are correlated with one another. Using a methodology closely matching the one

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<sup>56</sup> According to Healy et al, (1992) the quasi Market Value of Equity in year +1, for example, would be = Market value of Equity for target and acquirer at the beginning of year -1 plus year -1 and year 0 values of the merged firms after tax cash flow from operations (net of interest expense, non-operating

adopted by Healy et al. (1992), Cornett and Tehranian (1992) concluded that their sample produces superior cash flow returns on assets during the post merger period. This improvement in cash flow performance was due to improvements in the ability to attract loans and deposits, in employee productivity, and in asset growth. They also report statistically significant increases in the operating income to assets employed ratio and, especially, in the return on book equity. However, Berger and Humphrey (1992) point out that this latter result is strongly influenced by capital write-off, which reduced the denominator and gave a perverse boost to apparent performance. Moreover, Pilloff (1996) argues that Cornett and Tehranian (1992)'s industry-adjustment procedure does not control for differences in performance among banks operating in various regions of the country. *"In particular, the impact of the downturn in the Southwest during the late 1980's appears to be at least partially driving their findings of performance gains"*. Pilloff (1996) reached this conclusion after he had examined empirically the effect of a national benchmark on the results of Cornett and Tehranian (1992), and hence used a regional benchmark as well then he obtained contrasting results to those reported by Cornett and Tehranian (1992). We adopt a similar methodology to perform the analysis in this chapter, however we explain this methodology in the next section.

The two only studies, that we are aware of, that examined M&As in the European banking industry are Vander Venet (1996 and 1999a). Using a traditional accounting study and X-inefficiency method, Vander Venet (1996) addressed the question whether acquisitions and mergers improve the performance of the institutions involved based on a sample of 422 domestic and 70 cross-border acquisitions in the

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income, and cash taxes) plus cash from new share issues minus cash dividends to common and preferred shareholders and cash used to acquire treasury stock.

EC between 1988 and 1992. The analysis shows that the target banks in domestic majority-acquisitions exhibit an inferior performance pre-merger compared to the acquiring banks in terms of profitability and cost efficiency ratios. The post-merger performance seems to have deteriorated. On the other hand Vander Vennet (1996) found that the effective combination of banks in domestic mergers of equal partners turns out to provide ample opportunities for performance improvement. The operational efficiency and profit levels experience a significant improvement; the frontier efficiency measure showed similar improvement as well. The findings for cross border mergers is mixed although the expense ratios and the frontier efficiency measures showed significant improvement, yet this did not result in improved profits. Moreover, Vander Vennet's (1999a) findings were not different since he further explored merger motives using the same sample as Vander Vennet (1996). His regression results confirmed the earlier findings that profitability and efficiency improvements are associated with domestic mergers of equal partners. One shortcoming of both studies is that they did not include many accounting ratios in their analysis. We argue that some sides of the bank operations might have been affected, as a result of the merger, faster than other sides. For example, the merging parties might have reduced the personnel expenses due to branch closure, but at the same time their administrative expenses could have increased due to higher depreciation which may result from investment in technology. On the other hand these two studies used the same sample of bank merger in Europe for the period 1988-1992. Whereas our sample covers the period 1992-1997 and is hoped to provide a broader picture of the effect of mergers on the operating performance of the participating parties.

## 6.3 Sample design and Methodology.

### 6.3.1 Sample Design.

The sample we use to investigate the post-merger operating performance is a sub-sample of the initial sample of 102 deals that we used to investigate the market reaction to merger announcement in the European banking industry in Chapter three. We also followed a refinement strategy based on excluding deals where the acquirer was involved in another deal two years before and three years after the merger deal in place. We also excluded deals where the target bank was also involved in a merger deal within the two years preceding the merger deal under investigation. The aim of this refinement strategy is to ensure that every deal in our sample is free of any effect of another transaction that the bank might have done. We wanted to measure the economic effect of a specific deal on the operating performance of the party involved and not the economic effect of an acquisition programme that may include several deals within very close periods of time. In this sense we believe our sample overcomes potential data contamination problems in both Healy et al., (1992) and Cornett and Tehranian (1992). Healy et al., (1992) restricted the analysis on the M&A transactions between 1979 and 1984 involving the 50 largest targets assuming that it is *“less likely that the acquirers in the sample undertake equally large acquisitions before or after the events we study, reducing the probability of confounding events”* (Healy et al., 1992, page 138). However, Cornett and Tehranian (1992) investigated the post merger operating performance for 30 bank mergers where the purchase price was more than USD 100 million. Their refinement strategy was based on eliminating acquisitions from the sample *if the bidder was involved in more than one acquisition of USD 100 million or greater, and/or if the bidder undertook more than FIVE*



*acquisitions (of any size) over the event period* (Cornett and Tehranian, 1992 page 215).

Applying our refinement strategy reduced the sample to 35 merger deals completed between 1992 and 1997. Although we did not restrict our sample to large deals as Healy et al., (1992) and Cornett and Tehranian (1992) did, the deals in our sample are strategically influential investments on the operations of the acquiring banks. This fact can be observed by looking at the average deal value, which is USD 2,534 million, and the average percentage of shares acquired during the merger transaction, which amounted to 82.5%. In fact, all the merger deals in our sample involved a change in control over the target bank and these figures show clearly that the size of deal is large enough to be considered as an influential investment decision on the operations of the acquiring bank in the future.

For every transaction we collected the following information:

- The announcement date of the deal and the effective date.
- The value of the deal.
- The percentage of shares owned by the acquirer before, during and after the transaction.
- The form of the deal, whether it was a Merger or a Takeover deal.
- The consideration offered, cash, equity or other...
- Balance sheet and Income statement information.

Stock price and market value data for the sample banks and firms were collected from Datastream database. We collected the accounting data from two main sources; these

are: the FitchIbca BankScope CD and the annual reports available on Laser D. FitchIbca BankScope CD reports the financial statements in a unified format which provides consistent comparability among all the banks and firms available in the database regardless of the differing accounting regulations and standards in the various countries involved. Moreover, the BankScope CD is equipped with a software which enabled us to add financial statements which were collected from Lazer D. This feature, also provides consistency in reporting the financial statements even those which are added from outside the BankScope CD<sup>57</sup>. Therefore, the issue of differing accounting regulation is not a source of concern in our sample.

### **6.3.2 Methodology.**

#### **6.3.2.1 The operating performance measures.**

There have been several studies in the literature that have examined the change in operating performance associated with major corporate events such as, M&A, stock splits, management buyouts and initial public offerings<sup>58</sup>. The performance measures used varied from one study to the other. Many studies used traditional accounting ratios such as ROA and ROE (Rhoades, 1986; Rose, 1987a; Rose, 1987b; Rhoades, 1990), and operating income to assets or operating income to sales (Kaplan, 1989; Denis and Denis, 1993; DeGeorge and Zeckhauser, 1993; Mickelson and Partch, 1994; Mickelson and Shah, 1994; Holthausen and Larcker, 1994). Whereas some

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<sup>57</sup> FitchIBCA BankScope CD is a major source of database for Banks financial statements, many papers have used this source including, Vander Vennet (1996), Bikker (1999), Maudos, Pastor, Perez and Quesada (1999a), and Vander Vennet (1999a)

<sup>58</sup> Studies that investigated the operating performance of firms includes Spindt and Tarhan (1992), and Linder and Crane (1992) who study USA bank merger, Loughran and Ritter (1994) who study seasoned equity offerings, Stirickland, Wiles, and Zenner (1994) who study intervention by the United Shareholders Association, Mulherin and Poulsen (1994) who study proxy contests, Jain and Kini

studies used the change in earnings per share divided by the share value (Healy and Palepu, 1988; Asquith, Healy, and Palepu, 1989; and Healy and Palepu, 1990), other studies used cash flow measures scaled down by the book value of assets (Denis and Denis, 1993 and Holthausen and Larcker, 1994). Also popular is operating cash flow to market value of assets (Healy, Palepu, and Ruback, 1992; Cornett and Tehranian, 1992; and Healy, Palepu, and Ruback, 1994). Barber and Lyon (1996) evaluated some of the methods used where they examined the choice of an accounting-based performance measure, a statistical test, and a model of expected operating performance. They reported that the choice of performance measure is generally inconsequential, with one exception. Test statistics based on a cash-flow measure of operating income (i.e., cash flow return on assets) are uniformly less powerful than those based on other performance measures that they considered, such as return on assets, return on cash-adjusted assets, return on sales and return on market value of assets. But because of the nature of a particular research question, the choice of performance measure can be critical. We believe one of the reasons for this finding could be the method of computing the cash flow return on assets. Barber and Lyon (1996) defined operating cash flow as: operating income before depreciation plus the decrease in receivables, the decrease in inventory, the increase in accounts payable, the increase in other current liabilities, and the decrease in other current assets. Some other studies defined operating cash flow as: sales minus cost of goods sold, selling and administrative expenses, plus depreciation and goodwill amortisation (e.g. Healy et al., 1992 and 1994), and others used the free cash flow which, on top of the operating cash flow defined in Healy et al., (1992 and 1994), included the interest, preferred dividend and common dividend (Denis and Denis, 1993). The Barber and

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(1994) who study initial public offerings and Denis and Denis (1995) who study leveraged recapitalisations.

Lyon (1996) definition of operating cash flow is very broad. We think it might be characterised by high variability cross-sectionally since the value of inventory; for example, may vary according to the type of business of the sample firms even if these firms belong to the same two-digit SIC code group.

Barber and Lyon (1996) reported also that the models that are most powerful in detecting abnormal performance use a firm's lagged performance in forming a measure of expected performance. Most of the studies that examined the operating performance change after a specific event took into account the latter observation of Barber and Lyon (1996), in the sense that they compared the post-event operating performance with the pre-event operating performance.

We start the first step of our analysis by following the same methodology used by Healy, Palepu, and Ruback (1992) and adopted by other researcher such as Cornett and Tehranian (1992) and Higson and Elliot (1994), that is, the pre-tax operating cash flow returns on the market value of assets, in order to measure the improvement in operating performance. We define operating cash flow as the profit before tax plus interest on long-term debt plus depreciation and goodwill write-offs (as used by Cornett and Tehranian, 1992). The market value of assets we define, unlike Cornett and Tehranian (1992)<sup>59</sup>, as the market value of common shares plus the book value of preference shares and the book value of total debt (long term and short term) less cash.

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<sup>59</sup> Cornett and Tehranian (1992) do not include the book value of short-term debt in their measure of market value of assets.

The second step is to search for the source of operating performance change by examining the change in the financial ratios and determining the components of the operating cash flow return.

The financial ratios we examine belong to common bank performance indicators. Some of these ratios have been used by previous studies; however, our study introduces more ratios, which are intended to measure various sources of efficiency change. Moreover, we also use the loans to deposits ratio which has not been used in other studies, we believe this ratio is a good indicator of how well the bank utilises its deposits resources to grant loans to the market, this is why we included it in our analysis. In sum our study uses more ratios than any other study we are aware of, our aim is to measure the performance change that may belong to any side of the bank operations. Please note also that we summarised in table (2.1) the findings of the studies that examined the post-merger operating performance, and we exhibited the ratios that were used in every one of them.

The ratios we utilise for our analysis are the following:

- 1- ***Profitability measures:*** the profitability is the measure of the overall performance of any firm or bank. We use two common measures, the ROAA (return on average assets) measured as the net income after taxes as a percentage of book value of average total assets and ROE (return on average equity) measured as the net income after taxes as a percentage of book value of average equity.
- 2- ***Capital adequacy measures:*** the capitalisation of a financial institution is a main determinant of its soundness and stability. We use three main ratios these are: the total risk-adjusted capital ratio measured as Total Capital (Tier I + Tier II)/ Risk-

adjusted assets.<sup>60</sup> Equity to Deposits ratio, which is the percentage of deposits covered by the banks own equity and the Equity to Total customer loans ratio, which is the percentage of loans financed by the banks own equity.

- 3- ***Loan quality measures:*** Loan quality is one of the major determinants of bank performance since the quality of loans the banks carry in their portfolio affects their risk taking and profitability in the medium to long run. We use the ratios of Loan loss reserves to Gross loans, and the Non-performing loans to Gross loans<sup>61</sup>.
- 4- ***Deposits utilisation:*** in order to measure how the bank is making good use of the resources available on its balance sheet we introduce the ratio of Total Customer Loans to Total Deposits.
- 5- ***Efficiency measures:*** many ratios have been used in the literature to measure the banks ability to make the best use out of its assets in place in terms of generating higher income or incurring lower expenses. Mergers always promise that they will lead to efficiency improvement in terms of lower costs and higher revenues due to synergistic gains and complementary operations of both parties. We use several ratios in order to determine precisely where the change has come from, which part of the expense items or the income items. These ratios are: Non-interest expenses to Average assets, Interest expenses to Average assets, Non-interest expenses to Interest expenses, Other operating income to Average assets, Other operating income to Interest income, Personnel expenses to Average assets, Other administrative expenses to Average assets, and the Cost to Income ratio.

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<sup>60</sup> Tier I capital is defined as Common Shareholders' Equity plus Perpetual Preferred Stock plus minority interest in equity accounts of consolidated subsidiaries less Goodwill. Total Capital includes Tier I Capital plus a bank's loan loss reserves up to maximum of 1.25% or risk-adjusted assets plus various convertible and subordinated debt instruments. Risk-Adjusted Assets figure is comprised of two components: Risk-adjusted on balance sheet assets and Risk adjusted off balance sheet assets.

<sup>61</sup> Non-performing loans are those loans, which do not generate interest or commission income because of customers' default payment. These loans are usually classified as very high credit risk loans and they are at only one higher grade from being classified as bad debts.

6- ***Interest rate risk measure:*** this is a measure of the bank exposure to interest rate risk. We measure this exposure as the ratio of Net interest revenue to earning assets.

7- ***Liquidity risk measures:*** this is a measure of the bank's ability to meet its short-term obligations from the liquid assets in place. We use three ratios, the Cash and due from banks to Total assets, Liquid assets to Total deposits and borrowings, and the ratio of Net loans to total Assets.

Finally, because some of the performance measures might be correlated with each other, we accounted for possible problems of multicollinearity by employing the same test we used in chapter four. That is, we computed the eigenvalues and condition index and found that multicollinearity is not a problem for the independent variables in our models. Moreover, we also computed the Durbin-Watson *d*-statistics and found that the independent variables in our models do not suffer from serial correlation.

### **6.3.2.2 The performance benchmark.**

The cash flow, accounting and market value data for both the target and the acquiring bank are aggregated for two years pre-merger in order to form the pro forma base case, which then facilitate the comparability with the post-merger years. When we compare this pro forma benchmark with the post-merger performance measures we will be able to determine the performance change. For the post merger period we use the figures for the combined entity in the three years following the merger. We also deduct from the market value figure in the post-merger years the change in the equity

value of the target and acquiring bank during the merger announcement  $(-1,0)$ <sup>62</sup>.

When the market value revaluation is not excluded from the capital base in the post merger years, it will not be possible to observe any abnormal post-merger cash flow returns.

Because the change in performance might be attributable to economy-wide and industry effects, or to a continuation of bank-specific performance during the pre-merger, we use abnormal industry-adjusted performance measures to evaluate the post-merger performance. We collect the industry figures from the same source that we use to collect the data for our sample, that is, the FitchIBCA database, we collect the figures for every country in our sample separately.

In order to calculate the industry-adjusted figures for every performance measure we use, we deduct from every measure the average industry figure, which correspond to the country to which the sample bank belongs<sup>63</sup>. There are numerous studies that adjust for the industry-wide effect when investigating the operating performance change of firms or banks after the occurrence of certain corporate events. Some of these studies are: Healy and Palepu (1988), Asquith, Healy, and Palepu (1989), Kaplan (1989), Healy and Palepu (1990), Healy, Palepu, and Ruback (1992), Cornett and Tehranian (1992), Denis and Denis (1993), DeGeorge and Zeckhauser (1993),

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<sup>62</sup> Cornett and Tehranian (1992) and Healy et al., (1992) deduct the change in the equity value from five days before the merger announcement to the day the target is delisted from the stock exchange. We believe that this could be a very long period. For instance, most of the time the merger in the financial services industry takes time to be approved by the regulatory bodies, and therefore the change in equity value during this long period of time might be attributable to other factors which are not related to the merger event.

<sup>63</sup> For instance if the bank is a French bank we use the banking industry figures for France. In cases where the target bank and the acquiring bank are from two different countries, when we calculate the industry-adjusted performance measures we use the weighted-average industry figures for the countries of both parties weighted by the total assets of each bank.



Mickelson and Partch (1994), Mickelson and Shah (1994), Holthausen and Larcker (1994), and Healy, Palepu, and Ruback (1994).

We estimate the abnormal industry-adjusted cash flow returns using the following cross-sectional regression:

$$IACR_{post,i} = \alpha + \beta IACR_{pre,i} + \varepsilon_i \quad (1)$$

The abnormal industry-adjusted cash flow returns is the intercept  $\alpha$  of the cross-sectional regression of post-merger industry-adjusted cash flow returns ( $IACR_{post,i}$ ) on the pre-merger industry-adjusted cash flow returns ( $IACR_{pre,i}$ ) for the same sample bank. While  $\beta$  captures any correlation in cash flow returns between pre- and post-merger years, therefore,  $\beta IACR_{pre,i}$  measures the effect of the pre-merger performance on the post-merger returns, and  $\varepsilon_i$  is an error term. We use the same approach to measure the abnormal industry-adjusted performance for all the ratios we introduced earlier in the previous section.

### **6.3.2.3 The effect of the accounting method.**

There are two methods of accounting used to consolidate the financial statements of any merged institutions. These are the purchase method (acquisition accounting method) and the pooling of interest method (merger accounting method).

According to the purchase method, the assets and liabilities of the target firms are recorded at their market value, and any difference between the market value and the purchase price is recorded as goodwill and is amortised or written off in the

subsequent years. Under the purchase method, for the first year of the merger the results of the target and acquiring firms are consolidated from the date the merger took place. However, according to the pooling of interest method the assets and liabilities of the target firms are recorded at their book value and therefore the revaluation of assets is not being permitted according to this method which means goodwill do not appear in the balance sheet of the merged institution. The pooling of interest method allows the consolidation of the results of the merging parties from the beginning of the year regardless of when the merger took place.

These differences between the two accounting methods cause the reported earnings in the purchase method to be lower since in this method the depreciation, cost of goods sold, and goodwill expenses are higher. Moreover, because under the purchase method pre-acquisition profits are recorded separately, the earnings of the merging parties are likely to be consolidated for a shorter period of time compared to the pooling method. The book value of assets in the post-merger years is generally higher in the purchase method due to the asset write-up. Therefore, the lower earnings in the purchase method are due to the differences in the accounting methods, which implies that accounting rates of returns can be conveying a fake picture of the performance post-merger compared to the pre-merger years. Consequently, the cash flow measure of performance is not affected by depreciation or goodwill and represents a better measure for operating performance compared to the earnings measures.

On the other hand all the deals in our sample used the purchase method to consolidate the accounts of the merging parties and therefore our sample does not suffer from any problem related to the use of differing accounting methods of merger. In our opinion

the merging parties in our sample might have used the purchase method of accounting in order to benefit from tax shields due to the fact that under this method the reported earnings are lower than in the pooling of interest method, as we showed earlier. The reasoning could be that the merging parties are postponing tax payments until the merger benefits are realised in the medium or longer term.

## **6.4 THE RESULTS.**

### **6.4.1 Post-merger Cash Flow Return on Assets.**

In table (6.1) we report the bank, industry-adjusted, and abnormal industry-adjusted mean operating cash flow return on market value of assets for the full sample of 35 bank merger deals in Europe for deals completed between 1992 and 1997. In Panel A of table (6.1) we report bank (unadjusted) mean operating cash flow return on assets (in column 2) and industry-adjusted mean operating cash flow return on assets (in column 3). From Panel A of the table we can see that the mean (unadjusted) operating cash flow return on assets was 2.78% two years before merger and 3.15% one year pre-merger, this brings the bank mean operating cash flow return on assets to 2.97% for the pre-merger period under investigation. The figures for the post-merger period show a higher operating cash flow return on assets in the first two years subsequent to the merger year, while the third year show a slight decrease. The mean operating cash flow return on assets for the three post-merger years do show an improvement at 3.21%, but this improvement was not significantly different from zero. These figures are far lower than those reported in Healy et al., (1992) where the average pre-merger

cash flow returns was 25.3% and post-merger was 20.5%. The large difference is understandable since Healy et al., (1992) concentrate on the largest non-financial USA mergers between 1979 and 1984. Compared to financial services institutions, non-financial services firms are characterised by lower assets or in general higher Returns on Assets since the financial services institutions (mainly commercial banks) hold large amounts of deposits which drive almost any ratio scaled by the assets value downward compared to non-financial services firms. On the other hand these results are close to those reported in Cornett and Tehranian (1992), for 30 USA bank merger deals between 1982 and 1987, where the mean pre-merger cash flow returns was 2% and the mean post-merger figure was 2.6%. But it was not stated whether the improvement is significant or not.

However, the results of cash flow return improvement can be attributable to contemporaneous events and for economy wide effects. The trend in the whole industry might be driving the improvement in cash flow return for the merged institutions, and therefore, drawing conclusions from these figures might be misleading. The other alternative would be to adjust for the economy wide effects and the industry trends by using industry-adjusted cash flow returns<sup>64</sup>.

In column 3 and 4 in Panel A, table (6.1) we report the mean industry-adjusted operating cash flow returns and the percentage of sample banks with positive industry-adjusted returns. The merged banks in our sample outperformed their industry in the five-year period we investigate. The industry-adjusted cash flow return

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<sup>64</sup> The same procedure was used in Healy et al., (1992); Cornett and Tehranian (1992), Higson and Elliot (1994), Manson Stark and Thomas (1994), and Healy et al., (1994) using the same methodology that we adopted here. Moreover, for a list of some studies that adjust for the industry and economy wide trends please check the section titled The Performance benchmark in this chapter.

on assets was 0.94% in year -2 and 1.85% in year -1, however the mean industry-adjusted cash flow return for the two pre-merger years was 1.4% and was significantly different from zero at the 10% level. Most importantly the banks in our sample outperform their industry during the third post-merger year where the banks recorded a positive return of 1.87% (significantly different from zero at the 1%).

**TABLE (6.1): Mean Cash Flow Return on Assets (Total Sample).**

The table reports the mean operating cash flow return on actual market value of assets for 35 combined target and acquirer banks in years surrounding mergers completed in the period 1992 to 1997. It also shows the abnormal industry-adjusted returns in Panel B.

<b>Panel A: Pre and Post-merger operating cash flow returns</b>					
Year relative to merger	Bank Mean	Industry adjusted mean	% positive	Number of observations	T-statistics
-2	2.78	0.94	75.86%	29	1.66
-1	3.15	1.85	82.35%	35	(2.67)**
Mean Annual performance for years -2 and -1					
	2.97	1.40	80.00%	35	(2.01)*
1	3.66	1.11	85.71%	35	1.31
2	3.37	0.67	84.62%	26	0.68
3	2.60	1.87	86.67%	15	(3.80)***
Mean Annual performance for years 1 to 3					
	3.21	1.21	88.57%	35	(2.21)**

**Panel B: Abnormal industry-adjusted operating cash flow returns (t-values in parentheses)**

$$IACR_{post,l} = 0.56\% + 0.53 IACR_{pre,l} \quad R^2 = 0.33 \quad F\text{-statistic} = 16.19^{***} \quad N = 35$$

$$(0.974) \quad (4.024)^{***} \quad \text{Adjusted } R^2 = 0.31$$

The numbers in parentheses are White's (1980) heteroskedasticity-consistent t-statistics  
 (\*) Significantly different from zero at the 10% level, using two-tailed test  
 (\*\*) Significantly different from zero at the 5% level, using two-tailed test  
 (\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

However the mean industry-adjusted cash flow return for the three years was positive, 1.21%, and significantly different from zero at the 5% level of significance. In sum, these figures show, contrary to the unadjusted figures reported earlier, that the post-

merger operating performance of the merged banks in our sample, measured by mean industry-adjusted cash flow returns, has on a relative basis, DECREASED. The percentage of positive industry-adjusted returns is 85.7% in year 1, 84.6% in year 2, and 86.7% in year 3. Although these are high figures and well above the figure expected by chance alone (50%), yet this should not be misleading since the pre-merger period reveals similar patterns, where the percentage of positive figures is 75.9% in year -2 and 82% in year -1.

We have also showed that the mean pre-merger industry-adjusted cash flow return was significantly positive at 1.4%. Therefore, even though the mean post-merger industry-adjusted returns have decreased but stayed significantly positive at 1.21%, this positive figure might be due to the continuation of superior pre-merger industry-adjusted performance and not due to the merger itself. In order to disentangle the effect of any pre-merger performance on the post-merger performance, we use a cross-sectional regression approach to compare the post-merger performance with the pre-merger performance. We report the details in the following section.

At the beginning of our analysis we noticed an improvement in the (unadjusted) mean operating cash flow return from 2.97% to 3.21%, but after we accounted for the industry-wide effect we observed that the merging banks did not exhibit any improvement. Actually we showed that the industry-adjusted cash flow return deteriorated from 1.4% to 1.21% after merger, therefore, it seems that three years after merger the planned or expected synergy from merger was not realised three years after merger. However, some might argue that the three years period could not be long enough to have the merger benefits realise due to cultural change and the difficulty to

adapt to the new policies and procedures that might have been put in place. But practitioners pretend that within the first year after merger, the expected cost saving is about 50% while full savings can be achieved after three years (Rhoades, 1998). Moreover, others found on average savings of 35% of the acquired bank's data processing and back-office operations expense within six to nine months after the mergers<sup>65</sup> (Keefe, Bruyette, Woods, 1990). Therefore, we think that the three-year period is fairly a good time frame according to which certain merger benefits should have been realised if they can be attained.

#### **6.4.2 Abnormal industry-adjusted cash flow returns.**

We use the cross-sectional regression equation (1) explained earlier in section 6.3.2.2 and we report the results of this cross-sectional regression in Panel B of table (6.1).

From the shown results we can see that the estimate of  $\alpha$  is positive but not significantly different from zero which means that there is no evidence of abnormal post-merger performance. In addition, the estimate of  $\beta$  is 0.53 and significantly different from zero at the 1% level. This means that the industry-adjusted cash flow returns persist over time. Moreover, the mean positive returns in the post-merger period are due to the continuation of bank-specific performance during the pre-merger period and not due to the merger itself, since the estimate of  $\alpha$  is not significantly different from zero.

Our results showing the lack of any evidence of post-merger performance improvement contradict those reported by Cornett and Tehranian (1992) who use a similar methodology. The difference between our results and those of Cornett and

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<sup>65</sup> Quoted from Avkiran, N.K., 1999. The Evidence on Efficiency Gains: The role of mergers and the

Tehrani (1992) could be due to the fact that we study a different geographical market, and a different period. We also extend the analysis to disentangle the effect of the continuation of the pre-merger performance, which was not accounted for by Cornett and Tehrani (1992). But Cornett and Tehrani's industry-adjustment procedure does not control for differences in performance among banks operating in various regions of the country and therefore their results could be biased due to the use of a national benchmark rather than a regional benchmark. This observation was supported by Pilloff (1996)'s findings who replicated the results of Cornett and Tehrani (1992) and found no evidence of performance improvement. While we predicted the problem of using one unified benchmark for banks from different countries, and used a benchmark for every bank in our sample.

Looking at table (6.1) we can see that we could not include all the banks in our sample for all the years we examined because data was not available for some of them. For instance, for banks which merged in 1997, there were no financial statements available for analysis in year 3, i.e. year 2000, while some other banks were not represented in year -2 because data was not available, before year 1991, for these banks as well. Therefore, we accounted for the possible problem of having the results affected by the weight of some banks which are represented in every year we study, and the lack of weight for other banks which are not represented in every year. For this reason we constructed another sample which includes banks for which we have data available for years -1, 0, 1, and 2, giving a sample of 26 bank mergers we then performed the analysis one more time and rerun the cross-sectional regression as we did when we examined the largest sample.



We report the results in table (6.2) and we can see that the results are not materially different except that the evidence is stronger of no post-merger improvement in industry-adjusted operating cash flow return. The bank (unadjusted) mean cash flow return show a similar pattern, and close figures, to the original total sample in table (6.1). Comparing the figures for the one pre-merger year with the mean two post-merger years we notice an improvement (column 2). On the other hand when we investigate the industry-adjusted figures (column 3) we notice that for the pre-merger year there is no evidence of superior performance for the sample of 26 bank mergers, the industry-adjusted cash flow return is 1.55% not significantly different from zero at the 10% level. Whereas the performance is significantly above the industry mean during the first year after the merger and is 1.43 %. Moreover, when we consider the mean industry-adjusted cash flow return for the two post-merger years, we observe that the figure of 1.04% is not significantly different from zero and is lower than the pre-merger figure as well. From these figures, we conclude that there is no evidence of operating performance improvement during the two post-merger years.

We extend the analysis to measure the abnormal industry-adjusted cash flow return, Panel B of table (6.2), and find that the positive post-merger industry-adjusted cash flow return, although not significantly different from zero as we showed earlier, is due to the continuation of a bank-specific performance before the merger. This is clear from looking at the estimate of  $\beta$  (0.42), which is significant at the 5% level.

**TABLE (6.2): Mean Cash Flow Return on Assets (26 Deals).**

The table reports mean operating cash flow return on actual market value of assets for 26 combined target and acquirer banks in years surrounding mergers completed in the period 1992 to 1996. It also shows the abnormal industry-adjusted returns in Panel B.

<b>Panel A: Pre and Post merger operating cash flow returns</b>					
Year relative to merger	Bank Mean	Industry adjusted mean	% positive	Number of observations	T-statistics
-1	3.38	1.55	73.08%	26	1.67
1	3.89	1.43	80.77%	26	(2.02)*
2	3.37	0.67	84.62%	26	0.68
Mean Annual performance for years 1 and 2					
	3.63	1.04	84.62%	26	1.22
<b>Panel B: Abnormal industry-adjusted operating cash flow returns (t-values in parentheses)</b>					
$IACR_{post,t} = 0.39\% + 0.42 IACR_{pre,t}$			$R^2 = 0.21$	$F\text{-statistic} = 6.388^{**}$	$N = 26$
(0.49) (2.527)**			Adjusted $R^2 = 0.18$		

The numbers in parentheses are White's (1980) heteroskedasticity-consistent t-statistics

(\*) Significantly different from zero at the 10% level, using two-tailed test

(\*\*) Significantly different from zero at the 5% level, using two-tailed test

(\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

In sum, using the cash flow return on assets to investigate the operating performance change for the merged banks, we deduce that:

- The mean industry-adjusted cash flow return on assets decreased in the three post-merger years compared to the two pre-merger years for the 35 bank mergers that we investigate. The positive and significant post-merger return is due to the continuation of a bank-specific performance during the pre-merger period and not due to the merger itself, since there is no evidence of abnormal industry-adjusted cash flow return for the post-merger period.
- For the smaller sample of 26 bank mergers the analysis reveals that, although the industry-adjusted cash flow returns are not significantly different from zero in the

two periods, pre-merger and post-merger, yet the evidence is that there is no improvement in performance. Moreover, the positive post-merger return is due to the continuation of a bank-specific performance during the pre-merger period and not due to the merger itself, since there is no evidence of abnormal industry-adjusted cash flow return for the post-merger period.

Our results contradict those of Cornett and Tehranian (1992) for USA bank merger, and Healy et al., (1992) for non-bank mergers in the USA as well, as we showed earlier.

The positive industry-adjusted cash flow return in the post merger period can be attributed to various reasons and can arise from different sources. In the next section we examine where this positive return came from and try to determine what the components of the operating cash flow return are, we therefore, examine the change in some financial ratios, which belong to common bank performance indicators.

### **6.4.3 Sources of Cash Flow Returns.**

#### **6.4.3.1 The Unadjusted Performance Measures.**

We follow the same method of analysis that we used to examine the post-merger operating cash flow return in the previous section. In table (6.3) we report a comparison of the mean operating performance measures for 35 bank mergers for two pre-merger years and three post-merger years without adjusting for the industry trend. Whereas in table (6.4) we report the comparison after we adjusted for the industry trend. The unadjusted performance measures (table 6.3) should be considered as the

second step analysis for the bank mean unadjusted cash flow return (table 6.1 column 2).

The unadjusted figures in table (6.3) show the following:

The two profitability measures that we used, ROA and ROE, show an increase from two years pre-merger to three years post merger. The increase of the two ratios is not, however, significantly different from zero moreover, the percentage of banks which have a positive change in the profitability ratios is 57%, slightly above having the change due to chance i.e. 50%. As for the capitalisation, it seems that the merging banks have experienced a decrease in capitalisation, in terms of all the measures we use even though the decrease is only significantly different from zero for the Equity to Deposits ratio which decreased from 12.95% to 9.47%.

The Total capital ratio decreased from 14.38% to 12.06% and the Equity to total customer loans ratio decreased from 12.44% to 10.48%. On the other hand, the loan quality ratios show that the merging banks significantly improved the quality of their loan portfolio. The Loan loss reserve to Gross loans decreased from 5.77% to 3.54% (significant at the 10%), the Loan loss provisions to Net interest revenue also decreased from 29.44% to 16.79% (significant at the 1%), and the Non-performing loans to Gross loans decreased almost by half to 4.11% (significant at the 10%).

The deposits utilisation ratio does not seem to have changed significantly, whereas, the Non-interest expenses to Average assets and the Interest expenses to Average assets improved significantly after merger, at the 10% and 5% level respectively.

**TABLE (6.3): Unadjusted Performance Change (Total Sample).**

The table reports a comparison of the (unadjusted) mean operating performance measures for 35 combined target and acquirer banks for two years before merger and three years after merger between 1992 and 1997.

Variables	Pre-merger			Post-merger			Mean Difference	% Positive
	Bank Mean	Bank Median	% Positive	Bank Mean	Bank Median	% Positive		
<i>Return on Average Assets (ROAA) - %</i>	0.63	0.38	83%	0.66	0.56	94%	0.03	57%
<i>Return on Average Equity (ROAE) - %</i>	4.59	9.17	83%	9.52	11.49	94%	4.93	57%
<i>Total Capital Ratio - %</i>	14.38	11.87	100%	12.06	11.08	100%	-2.32	46%
<i>Equity to Deposits %</i>	12.95	7.47	100%	9.47	7.47	100%	-3.49*	37%
<i>Equity to Total Customer Loans %</i>	12.44	9.12	100%	10.48	9.67	100%	-1.96	46%
<i>Capital to Assets Ratio %</i>	7.89	7.05	100%	6.65	6.39	100%	-1.23	46%
<i>Loan Loss Reserve / Gross Loans - %</i>	5.77	3.42	97%	3.54	2.74	94%	-2.23*	31%
<i>Loan Loss Prov / Net Int Rev - %</i>	29.44	21.75	97%	16.79	14.38	94%	-12.65***	34%
<i>Non Perf Loans / Gross Loans - %</i>	8.01	4.05	83%	4.11	2.97	89%	-3.89*	31%
<i>Total Customer Loans To Deposits %</i>	91.63	79.29	100%	89.56	81.46	100%	-2.08	46%
<i>Non Int Exp / Avg Assets - %</i>	3.30	3.07	100%	2.60	2.36	100%	-0.70*	14%
<i>Interest Expenses To Ave Assets</i>	7.55	5.43	100%	4.32	4.53	100%	-3.23**	17%
<i>Non-Interest Exp To Interest Expe</i>	85.00	55.37	100%	66.40	60.67	100%	-18.60	71%
<i>Oth Op Inc / Avg Assets - %</i>	1.77	1.21	97%	1.32	1.19	97%	-0.45	46%
<i>Other Ope Inc To Inte Income</i>	4.00	2.82	89%	3.36	3.23	89%	-0.65	60%
<i>Personnel Expenses To Ave Assets</i>	1.72	1.26	100%	1.25	1.19	100%	-0.46	26%
<i>Other Admin Expen to Ave Assets</i>	0.98	0.65	94%	0.72	0.64	94%	-0.26	40%
<i>Cost to Income Ratio - %</i>	79.11	69.90	100%	68.06	69.32	100%	-11.05	51%
<i>Net Interest Rev To Earning Assets</i>	2.81	2.63	100%	2.12	2.20	100%	-0.69***	23%
<i>Cash and Due from Banks To Tot Assets</i>	1.46	0.80	97%	1.57	0.95	100%	0.10	43%
<i>Net Loans / Total Assets - %</i>	51.97	50.04	100%	52.63	54.00	100%	0.66	51%
<i>Liquid Assets / Tot Dep &amp; Bor - %</i>	18.05	20.39	83%	21.33	19.41	94%	3.28	49%

The Statistical test is White's (1980) heteroskedasticity-consistent t-test

(\*) Significantly different from zero at the 10% level, using two-tailed test

(\*\*) Significantly different from zero at the 5% level, using two-tailed test

(\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

Though the other efficiency measures changed, the change was not significantly different from zero.

The net interest revenue to earning assets seems to have decreased from 2.81% to 2.12%. This significant decrease (at the 1% level) is reasonable because of the trend of decreasing interest margins in the whole financial sector. On the other hand, as for the liquidity measures, it seems that the positive change was not significant.

As a summary, we do not find an evidence of a significant profitability improvement for the 35 bank mergers we examined, moreover, the efficiency effect of these mergers fail to be realised very strongly. We do not find significant improvements in most of the efficiency measures that we used. Merged banks appear to have improved their non-interest expenses and interest expenses ratios, in addition to this source of value gain it seems that the loan quality improved as well. But considering the decrease in the Non-performing loans to Gross loans ratio, together with the other loan quality ratios, we believe that the merged institutions did not shift to a lower credit risk loan portfolio by granting better quality loans. It seems that the decrease in these ratios was due to the write off of a large amount of the bad debts that they held in their portfolios. Having said that, we deduce that this is the main reason why the Non-performing loans to Gross loans almost halved after the merger, and this huge decrease is not due to an increase in the amount of customer loans, which increased only by 11% on average, but is due to the large decrease in the amount of Non-performing loans (more than 75%).

**TABLE (6.5): Unadjusted Performance Change (26 Deals).**

The table reports a comparison of the operating performance measures for 26 combined target and acquirer banks for one year before merger and the two-year average after merger between 1992 and 1996.

Variables	Pre-merger			Post-merger			Mean Difference	% Positive
	Bank Mean	Bank Median	% Positive	Bank Mean	Bank Median	% Positive		
Return on Average Assets (ROAA) - %	0.57	0.43	73%	0.66	0.52	92%	0.08	50%
Return on Average Equity (ROAE) - %	-1.09	8.48	73%	7.68	10.31	92%	8.77	54%
Total Capital Ratio - %	16.04	11.22	100%	12.32	11.08	100%	-3.72	46%
Equity to Deposits %	11.88	7.44	100%	10.11	7.03	100%	-1.77	38%
Equity to Total Customer Loans %	13.41	9.85	100%	11.09	9.90	100%	-2.32	42%
Capital to Assets Ratio %	8.61	5.98	100%	6.79	6.66	100%	-1.82	42%
Loan Loss Reserve / Gross Loans - %	6.57	3.67	96%	3.97	3.13	92%	-2.59	35%
Loan Loss Prov / Net Int Rev - %	30.31	16.91	92%	16.11	14.06	88%	-14.20***	35%
Non Perf Loans / Gross Loans - %	10.53	4.82	88%	4.62	3.27	88%	-5.91**	35%
Total Customer Loans To Deposits %	87.47	75.70	100%	86.57	79.19	100%	-0.90	46%
Non Int Exp / Avg Assets - %	3.51	3.50	100%	2.76	2.64	100%	-0.75	15%
Interest Expenses To Ave Assets	8.05	5.28	100%	4.53	4.70	100%	-3.52*	27%
Non-Interest Exp To Interest Expe	89.03	58.29	100%	67.10	60.76	100%	-21.93	65%
Oth Op Inc / Avg Assets - %	1.64	1.18	100%	1.27	1.12	96%	-0.36	46%
Other Ope Inc To Inte Income	3.59	1.90	85%	1.54	2.93	85%	-2.05	50%
Personnel Expenses To Ave Assets	1.87	1.45	100%	1.34	1.28	100%	-0.53	35%
Other Admin Expen to Ave Assets	1.08	0.69	92%	0.74	0.63	92%	-0.34	46%
Cost to Income Ratio - %	85.61	69.23	100%	68.95	69.92	100%	-16.67	54%
Net Interest Rev To Earning Assets	2.98	2.76	100%	2.27	2.36	100%	-0.71*	23%
Cash and Due from Banks To Tot Assets	1.43	0.82	96%	1.46	0.93	100%	0.04	54%
Net Loans / Total Assets - %	49.44	49.21	100%	51.62	53.41	100%	2.18	54%
Liquid Assets / Tot Dep & Bor - %	18.05	16.44	81%	22.38	19.36	92%	4.33	50%

The Statistical test is White's (1980) heteroskedasticity-consistent t-test

(\*) Significantly different from zero at the 10% level, using two-tailed test

(\*\*) Significantly different from zero at the 5% level, using two-tailed test

(\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

**TABLE (6.7): Pre and Post-merger Annual Unadjusted Performance.**

The table shows a comparison of the mean operating performance measures for 35 combined target and acquirer banks for one year before merger and three consecutive years after merger between 1992 and 1997.

Variables	One Year Pre-merger		First Year Post-merger		Second Year		Third Year	
	Bank Mean	% Positive	Bank Mean	% Positive	Bank Mean	% Positive	Bank Mean	% Positive
<i>Return on Average Assets (ROAA) - %</i>	0.53	79%	0.67	97%	0.64	92%	0.61	100%
<i>Return on Average Equity (ROAE) - %</i>	2.28	79%	10.72	97%	6.14	92%	11.99	100%
<i>Total Capital Ratio - %</i>	14.91	100%	11.98	100%	12.38	100%	11.44	100%
<i>Equity to Deposits %</i>	9.12	100%	9.19	100%	10.40	100%	8.17	100%
<i>Equity to Total Customer Loans %</i>	12.05	100%	10.58	100%	11.00	100%	10.09	100%
<i>Capital to Assets Ratio %</i>	8.01	100%	6.55	100%	6.89	100%	7.12	100%
<i>Loan Loss Reserve / Gross Loans - %</i>	4.50	97%	3.73	94%	3.74	92%	2.60	87%
<i>Loan Loss Prov / Net Int Rev - %</i>	26.99	94%	16.31	91%	16.56	88%	17.00	100%
<i>Non Perf Loans / Gross Loans - %</i>	6.47	82%	4.29	89%	4.30	88%	3.99	87%
<i>Total Customer Loans To Deposits %</i>	90.53	100%	87.29	100%	88.70	100%	82.88	100%
<i>Non Int Exp / Avg Assets - %</i>	3.35	100%	2.73	100%	2.63	100%	2.88	100%
<i>Interest Expenses To Ave Assets</i>	5.89	100%	4.50	100%	4.34	100%	4.14	100%
<i>Non-Interest Exp To Interest Expe</i>	77.50	100%	66.57	100%	67.02	100%	71.74	100%
<i>Oth Op Inc / Avg Assets - %</i>	1.52	100%	1.32	97%	1.25	96%	1.38	100%
<i>Other Ope Inc To Inte Income</i>	4.22	91%	3.55	91%	1.23	85%	3.02	93%
<i>Personnel Expenses To Ave Assets</i>	1.44	100%	1.29	100%	1.32	100%	1.40	100%
<i>Other Admin Expen to Ave Assets</i>	0.77	94%	0.72	94%	0.73	92%	0.71	87%
<i>Cost to Income Ratio - %</i>	69.08	100%	69.31	100%	67.80	100%	66.55	100%
<i>Net Interest Rev To Earning Assets</i>	2.54	100%	2.19	100%	2.21	100%	2.47	100%
<i>Cash and Due from Banks To Tot Assets</i>	1.32	100%	1.57	100%	1.48	100%	1.18	100%
<i>Net Loans / Total Assets - %</i>	50.54	100%	52.16	100%	52.02	100%	54.69	100%
<i>Liquid Assets / Tot Dep &amp; Bor - %</i>	17.35	82%	20.25	89%	23.52	92%	23.01	100%



**TABLE (6.9): Pre and Post merger Annual Unadjusted Performance (26 Deals)**

The table shows a comparison of the mean operating performance measures for 26 combined target and acquirer banks for one year before merger and two consecutive years after merger between 1992 and 1996.

Variables	One Year Pre-merger		First Year Post-merger		Second Year	
	Bank Mean	% Positive	Bank Mean	% Positive	Bank Mean	% Positive
<i>Return on Average Assets (ROAA) - %</i>	0.57	73%	0.67	96%	0.64	92%
<i>Return on Average Equity (ROAE) - %</i>	-1.09	73%	9.22	96%	6.14	92%
<i>Total Capital Ratio - %</i>	16.04	100%	12.26	100%	12.38	100%
<i>Equity to Deposits %</i>	11.88	100%	9.81	100%	10.40	100%
<i>Equity to Total Customer Loans %</i>	13.41	100%	11.18	100%	11.00	100%
<i>Capital to Assets Ratio %</i>	8.61	100%	6.68	100%	6.89	100%
<i>Loan Loss Reserve / Gross Loans - %</i>	6.57	96%	4.21	92%	3.74	92%
<i>Loan Loss Prov / Net Int Rev - %</i>	30.31	92%	15.66	88%	16.56	88%
<i>Non Perf Loans / Gross Loans - %</i>	10.53	88%	4.94	88%	4.30	88%
<i>Total Customer Loans To Deposits %</i>	87.47	100%	84.44	100%	88.70	100%
<i>Non Int Exp / Avg Assets - %</i>	3.51	100%	2.89	100%	2.63	100%
<i>Interest Expenses To Ave Assets</i>	8.05	100%	4.73	100%	4.34	100%
<i>Non-Interest Exp To Interest Expe</i>	89.03	100%	67.18	100%	67.02	100%
<i>Oth Op Inc / Avg Assets - %</i>	1.64	100%	1.30	96%	1.25	96%
<i>Other Ope Inc To Inte Income</i>	3.59	85%	1.85	88%	1.23	85%
<i>Personnel Expenses To Ave Assets</i>	1.87	100%	1.37	100%	1.32	100%
<i>Other Admin Expen to Ave Assets</i>	1.08	92%	0.74	92%	0.73	92%
<i>Cost to Income Ratio - %</i>	85.61	100%	70.09	100%	67.80	100%
<i>Net Interest Rev To Earning Assets</i>	2.98	100%	2.33	100%	2.21	100%
<i>Cash and Due from Banks To Tot Assets</i>	1.43	96%	1.45	100%	1.48	100%
<i>Net Loans / Total Assets - %</i>	49.44	100%	51.21	100%	52.02	100%
<i>Liquid Assets / Tot Dep &amp; Bor - %</i>	18.05	81%	21.24	88%	23.52	92%

These findings are also confirmed when we restrict the analysis to the sample of 26 bank mergers (see table 6.5 above) where we get close figures to the ones reported above in table (6.3).

In addition, in order to gain more insights from these results, we also report the gradual change every year in the unadjusted performance measures in table (6.7) for the total sample, and in table (6.9) for the 26 bank mergers.

In sum the analysis of these ratios supports the conclusion, which we obtained earlier that the bank mean (unadjusted) cash flow return improved but not significantly during the post-merger period. Therefore, the improvement in Non-interest expenses to Average assets and in Interest Expenses to Average assets did not provide enough support for the banks cash flow position.

#### **6.4.3.2 The Abnormal Industry-adjusted Performance.**

In this section we extend the analysis to examine whether the industry trend affected our conclusions in the previous section. Therefore, we deduct the industry mean figures from our sample ratios and analyse the results one more time, afterwards, we calculate the abnormal industry-adjusted performance measures and examine whether the change is due to the merger itself or is a continuation to the pre-merger performance. We reported the results in table (6.4) below and we reached the following conclusions concerning the common bank performance measures.

**TABLE (6.4): Industry-adjusted Performance Change (Total Sample).**

The table reports a comparison of the mean industry-adjusted operating performance measures for 35 combined target and acquirer banks for two years before merger and three years after merger between 1992 and 1997.

Variables	Pre-merger		Post-merger		Abnormal Performance
	Industry-adjusted mean	% Positive	Industry-adjusted mean	% Positive	
<i>Return on Average Assets (ROAA) - %</i>	-0.24	26%	-0.60***	23%	-0.46**
<i>Return on Average Equity (ROAE) - %</i>	-5.59	46%	0.06	74%	1.77
<i>Total Capital Ratio - %</i>	-2.76	17%	-4.28***	3%	-3.95***
<i>Equity to Deposits %</i>	3.21	43%	-1.61	23%	-3.25**
<i>Equity to Total Customer Loans %</i>	1.47	46%	-0.90	29%	0.91
<i>Capital to Assets Ratio %</i>	0.35	40%	-0.76***	20%	-0.79**
<i>Loan Loss Reserve / Gross Loans - %</i>	1.35	26%	-0.22	26%	-0.47*
<i>Loan Loss Prov / Net Int Rev - %</i>	1.40	54%	-3.85	49%	-3.96
<i>Non Perf Loans / Gross Loans - %</i>	2.60	34%	-0.51	17%	-0.57
<i>Total Customer Loans To Deposits %</i>	11.00	49%	11.61*	43%	7.10
<i>Non Int Exp / Avg Assets - %</i>	-0.31	31%	-0.67***	26%	-0.64**
<i>Interest Expenses To Ave Assets</i>	-3.39*	9%	-4.16***	11%	-3.43***
<i>Non-Interest Exp To Interest Expe</i>	41.99**	63%	16.02**	49%	16.54**
<i>Oth Op Inc / Avg Assets - %</i>	0.30	43%	-0.55**	40%	-0.55**
<i>Other Ope Inc To Inte Income</i>	-0.45	43%	-1.33	37%	-1.19
<i>Personnel Expenses To Ave Assets</i>	-0.43	29%	-0.63***	26%	-0.56***
<i>Other Admin Expen to Ave Assets</i>	-0.07	29%	-0.32***	17%	-0.31***
<i>Cost to Income Ratio - %</i>	14.11	60%	3.41	57%	3.42
<i>Net Interest Rev To Earning Assets</i>	0.37	54%	0.08	46%	0.01
<i>Cash and Due from Banks To Tot Assets</i>	0.35	49%	0.45	51%	0.24
<i>Net Loans / Total Assets - %</i>	-0.01	51%	-0.52	51%	-0.51
<i>Liquid Assets / Tot Dep &amp; Bor - %</i>	-5.82*	29%	-4.21**	23%	-2.79*

The Statistical test is White's (1980) heteroskedasticity-consistent t-test

(\*) Significantly different from zero at the 10% level, using two-tailed test

(\*\*) Significantly different from zero at the 5% level, using two-tailed test

(\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

**The profitability:** the ROE show similar results to the unadjusted ratios that we examined earlier, there is no evidence of significant change in profitability during the post-merger period. However, the ROA and ROE ratios were not significantly below the industry average before merger but the ROA seems to have dropped to 0.60% below the industry average after the merger (significant at the 1% level). Moreover, the intercept  $\alpha$ , the abnormal industry-adjusted ROA, in the cross-sectional regression of post-merger industry-adjusted ROA on pre-merger ROA is -0.46% and is statistically significant. This evidence indicates that the merger led to a decrease in the ROA ratio.

The behaviour of profitability for the merging institutions can also be detected by observing table (6.8), in which we show how the ratios changed gradually every year, from one year pre-merger to three years post-merger. It is obvious from this table that the ROA dropped to 0.66% (significant at the 1% level) below the industry average one year right after the merger. Moreover, when we restrict the analysis to the smaller sample of 26 mergers, the results do not change, actually they become more apparent since ROA decreases to 0.87% below the industry average and the figure is significant at the 1% level.

Our findings are, in general, similar to most of the other studies done in the USA and Europe. For instance, Rhoades (1986) reported no profitability improvement for the acquiring bank in 413 USA bank mergers. Similar findings were later reported in Rose (1987b) for the acquiring bank and in Rhoades (1990), Spindt and Tarhan

(1992), for the target banks<sup>66</sup>. While Spong and Shoenhair (1992) reported that the average ROA and ROE for the target banks decreased, but the median figures have increased. Whereas Rose (1987a), Rose (1989), Cornett and Tehranian (1992)<sup>67</sup>, Berger and Humphrey (1992), O'Keefe (1992), Rose (1992)<sup>68</sup>, Linder and Crane (1992)<sup>69</sup>, Peristiani (1993a), Pilloff (1996), and recently Kwan and Eisenbeis (1999) found similar evidence, of no profitability improvement, for the combined entity of target and acquiring banks.

On the other hand the evidence of improved profitability was limited to very few studies, these included Cornett and Tehranian (1992) (for the ROE ratio but not the ROA ratio) and Peristiani (1993b) who find that ROA ratio has improved for the combined entity of target and acquirer. Rhoades (1998) also reports ROA improvement for seven out of the nine case studies that he summarised, while Rose (1995) found that the ROA and ROE ratios improved for acquiring banks during the two post-merger years but deteriorated afterwards. Similar patterns to Rose (1995) were found in Craig and Santos (1997) for quarterly data from quarter -4 to quarter 16 relative to the acquisition date. However, Vander Venet (1996 and 1999a) reported improved profitability in the European credit institutions for domestic mergers of equal partners only, but no improved profitability for domestic acquisitions and cross-border acquisitions.

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<sup>66</sup> Spindt Tarhan (1992) found that the ROA ratio for the target bank did not improve but the ROE improved after merger. While Spong and Shoenhair (1992) found that the mean ROA

<sup>67</sup> Cornett and Tehranian (1992) found that the ROA ratio did not improve but the ROE improved after merger, for the combined entity.

<sup>68</sup> Rose (1992) used the ROA and ROE ratios as well and found that the ROE ratio improved while the ROA did not.

<sup>69</sup> Linder and Crane (1992) used the operating income to assets ratio, but also found that this ratio improved for mergers within the BHC.

**TABLE (6.6): Industry-adjusted Performance Change (26 Deals).**

The table reports a comparison of the mean industry-adjusted operating performance measures for 26 combined target and acquirer banks for one year before merger and the two-year average after merger between 1992 and 1996.

Variables	Pre-merger		Post-merger		Abnormal Performance
	Industry-adjusted mean	% Positive	Industry-adjusted mean	% Positive	
Return on Average Assets (ROAA) - %	-0.44	31%	-0.73**	15%	-0.59**
Return on Average Equity (ROAE) - %	-12.72	50%	-1.67	58%	-0.59
Total Capital Ratio - %	-0.36	19%	-4.59***	4%	-4.56***
Equity to Deposits %	2.29	38%	0.79	19%	-1.09
Equity to Total Customer Loans %	2.15	42%	-0.06	31%	2.25
Capital to Assets Ratio %	0.88	38%	-1.04**	15%	-1.09**
Loan Loss Reserve / Gross Loans - %	2.01	31%	-0.17	27%	-0.55*
Loan Loss Prov / Net Int Rev - %	-4.74	42%	-1.33	38%	-0.97
Non Perf Loans / Gross Loans - %	4.38	42%	-0.90**	12%	-1.03**
Total Customer Loans To Deposits %	9.12	50%	10.24	38%	6.66
Non Int Exp / Avg Assets - %	-0.32	27%	-0.81***	19%	-0.80***
Interest Expenses To Ave Assets	-4.18	12%	-4.81***	19%	-4.05***
Non-Interest Exp To Interest Expe	47.19*	73%	15.48	46%	16.32**
Oth Op Inc / Avg Assets - %	0.23	42%	-0.67***	38%	-0.66**
Other Ope Inc To Inte Income	0.44	46%	-2.43**	35%	-2.47**
Personnel Expenses To Ave Assets	-0.64	19%	-0.78***	23%	-0.74***
Other Admin Expen to Ave Assets	-0.08	23%	-0.42***	8%	-0.41***
Cost to Income Ratio - %	20.03	62%	4.33	65%	4.37
Net Interest Rev To Earning Assets	0.44	46%	0.12	46%	0.02
Cash and Due from Banks To Tot Assets	0.32	54%	0.33	54%	0.04
Net Loans / Total Assets - %	-1.90	46%	0.60	62%	2.04
Liquid Assets / Tot Dep & Bor - %	-2.46	31%	-4.06*	12%	-3.37*

The Statistical test is White's (1980) heteroskedasticity-consistent t-test

(\*) Significantly different from zero at the 10% level, using two-tailed test

(\*\*) Significantly different from zero at the 5% level, using two-tailed test

(\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

**TABLE (6.8): Pre and Post-merger Annual Industry-adjusted Performance.**

The table shows a comparison of the mean industry-adjusted operating performance measures for 35 combined target and acquirer banks for one year before merger and three consecutive years after merger between 1992 and 1997.

Variables	One Year Pre-merger		N = 35		First Year Post-merger		N = 35		Second Year Post-merger		N = 26		Third Year Post-merger		N = 15	
	Bank Mean	% Positive	Bank Mean	% Positive	Bank Mean	% Positive	Bank Mean	% Positive	Bank Mean	% Positive	Bank Mean	% Positive	Bank Mean	% Positive		
Return on Average Assets (ROAA) - %	-0.51	26%	-0.66***	23%	-0.59	23%	-1.16*	13%								
Return on Average Equity (ROAE) - %	-10.29	50%	1.62	74%	-3.52	50%	1.14	47%								
Total Capital Ratio - %	-2.91	12%	-4.34***	3%	-4.63***	0%	-5.68***	7%								
Equity to Deposits %	-0.65	32%	-1.87	20%	1.12	27%	-2.00*	20%								
Equity to Total Customer Loans %	1.15	41%	-0.88	29%	-0.05	27%	-0.91	27%								
Capital to Assets Ratio %	0.40	38%	-0.96**	20%	-0.91**	15%	-0.59	27%								
Loan Loss Reserve / Gross Loans - %	0.27	24%	-0.06	31%	-0.39	31%	-0.50	40%								
Loan Loss Prov / Net Int Rev - %	-4.60	47%	-4.02	46%	-0.73	38%	-2.90	60%								
Non Perf Loans / Gross Loans - %	1.28	32%	-0.59	17%	-0.99**	12%	0.20	40%								
Total Customer Loans To Deposits %	10.20	47%	9.85	40%	11.98	38%	-0.29	40%								
Non Int Exp / Avg Assets - %	-0.32	29%	-0.59**	23%	-0.80***	23%	-1.05	20%								
Interest Expenses To Ave Assets	-5.16***	12%	-3.90***	17%	-4.77***	23%	-8.91**	7%								
Non-Interest Exp To Interest Expe	32.62**	68%	13.54*	49%	17.62**	54%	31.58***	80%								
Oth Op Inc / Avg Assets - %	-0.06	38%	-0.51**	40%	-0.63**	46%	-1.02	40%								
Other Ope Inc To Inte Income	0.35	44%	-0.36	43%	-3.41**	38%	-3.09*	40%								
Personnel Expenses To Ave Assets	-0.84**	24%	-0.57***	31%	-0.80***	19%	-1.24**	27%								
Other Admin Expen to Ave Assets	-0.30**	26%	-0.31***	20%	-0.42***	12%	-0.66**	13%								
Cost to Income Ratio - %	6.39*	59%	7.15	57%	0.63	54%	1.79	73%								
Net Interest Rev To Earning Assets	0.13	50%	0.08	54%	0.13	42%	0.31*	60%								
Cash and Due from Banks To Tot Assets	0.24	50%	0.47	51%	0.32	54%	0.09	60%								
Net Loans / Total Assets - %	-1.35	50%	-0.72	51%	0.81	62%	2.56	67%								
Liquid Assets / Tot Dep & Bor - %	-7.38*	29%	-3.84*	20%	-4.21**	15%	-5.45*	27%								

The Statistical test is White's (1980) heteroskedasticity-consistent t-test

(\*) Significantly different from zero at the 10% level, using two-tailed test

(\*\*) Significantly different from zero at the 5% level, using two-tailed test

(\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

**TABLE (6.10): Pre and Post-merger Annual Industry-adjusted performance (26 Deals).**

The table shows a comparison of the mean industry-adjusted operating performance measures for 26 combined target and acquirer banks for one year before merger and two consecutive years after merger between 1992 and 1996.

Variables	One Year Pre-merger		First Year Post-merger		Second Year Post-merger	
	Bank Mean	% Positive	Bank Mean	% Positive	Bank Mean	% Positive
Return on Average Assets (ROAA) - %	-0.44	31%	-0.87***	15%	-0.59	23%
Return on Average Equity (ROAE) - %	-12.72	50%	0.18	65%	-3.52	50%
Total Capital Ratio - %	-0.36	19%	-4.56***	4%	-4.63***	0%
Equity to Deposits %	2.29	38%	0.47	19%	1.12	27%
Equity to Total Customer Loans %	2.15	42%	-0.08	31%	-0.05	27%
Capital to Assets Ratio %	0.88	38%	-1.17**	15%	-0.91**	15%
Loan Loss Reserve / Gross Loans - %	2.01	31%	0.04	35%	-0.39	31%
Loan Loss Prov / Net Int Rev - %	-4.74	42%	-1.94	42%	-0.73	38%
Non Perf Loans / Gross Loans - %	4.38	42%	-0.80*	12%	-0.99**	12%
Total Customer Loans To Deposits %	9.12	50%	8.51	35%	11.98	38%
Non Int Exp / Avg Assets - %	-0.32	27%	-0.81**	15%	-0.80***	23%
Interest Expenses To Ave Assets	-4.18	12%	-4.85***	23%	-4.77***	23%
Non-Interest Exp To Interest Expe	47.19**	73%	13.34	46%	17.62**	54%
Oth Op Inc / Avg Assets - %	0.23	42%	-0.72**	38%	-0.63**	46%
Other Ope Inc To Inte Income	0.44	46%	-1.44	42%	-3.41**	38%
Personnel Expenses To Ave Assets	-0.64	19%	-0.76***	27%	-0.80***	19%
Other Admin Expen to Ave Assets	-0.08	23%	-0.42***	12%	-0.42***	12%
Cost to Income Ratio - %	20.03	62%	8.04	62%	0.63	54%
Net Interest Rev To Earning Assets	0.44	46%	0.11	54%	0.13	42%
Cash and Due from Banks To Tot Assets	0.32	54%	0.34	54%	0.32	54%
Net Loans / Total Assets - %	-1.90	46%	0.40	58%	0.81	62%
Liquid Assets / Tot Dep & Bor - %	-2.46	31%	-3.91	15%	-4.21**	15%

The Statistical test is White's (1980) heteroskedasticity-consistent t-test

(\*) Significantly different from zero at the 10% level, using two-tailed test

(\*\*) Significantly different from zero at the 5% level, using two-tailed test

(\*\*\*) Significantly different from zero at the 1% level, using two-tailed test



*The Capital adequacy:* table (6.4) shows that the mean Total Capital ratio decreased from 2.76% below the industry average (although was not significant) to 4.28% (highly significant at the 1% level) below the industry average after merger. The same pattern is observed for the Equity to Deposits and the Equity to Total customer loans ratios. The equity to deposits dropped from 3.21% above the industry average to 1.61% below the industry average, and the equity to total customer loans decreased from 1.47% to -0.9%. But both ratios were not significantly different from zero during the pre-merger or the post-merger period.

The estimates of the abnormal industry-adjusted post-merger performance for these ratios provide evidence for decreased capitalisation. The estimate related to the total capital ratio is -3.95% and statistically significant, and the estimate of the abnormal industry-adjusted post-merger equity to deposits ratio is -3.25% and significant as well. Whereas, there is no evidence of abnormal post-merger change in the equity to customer loans ratio since the estimate of  $\alpha$  is not significantly different from zero.

We can see the decrease in the Total capital ratio clearly in table (6.8) as well where it follows a downward trend beginning from year one after merger. Pilloff (1996) and Rose (1995) also found decreased capitalisation measured by equity to assets, whereas Kwan and Eisenbeis (1999) found that the equity to assets ratio improved after merger. However, Cornett and Tehranian (1992) reported an insignificant improvement of the capital to assets ratio of the merged banks driven by increased deposits and loans figures as well.

*Loan quality:* the loan quality ratios that we used exhibit above industry average ratios before merger and below industry average after merger, which are not significantly different from zero. On the other hand when we restrict the analysis to the small sample of 26 mergers (table 6.6), we notice that the Non-performing loans to gross loans ratio was not significantly different from zero before merger (4.38%) and dropped to -0.9% after merger (significant at the 5% level). This ratio dropped significantly in the first year after merger to -0.80% and to -99% in the second year (table 6.10).

On the other hand the evidence on improved loan quality is obvious due to the significant estimate of the abnormal industry-adjusted post-merger performance in the loan loss reserves to gross loans ratio which is  $-0.467\%$ . In addition to that, when we restrict the analysis to the smaller sample of 26 bank mergers, we find another evidence of improved loan quality and decrease in credit risk since the abnormal industry-adjusted post-merger performance in the non-performing loans to gross loans ratio is  $-1.03\%$  and is significant at the 5% level (table 6.6 column 7).

Moreover, in support of our earlier analysis for the unadjusted performance measures, we deduce from this outcome that the merged banks tend to start a restructuring process right after the merger. This process starts by polishing the loan portfolio of these banks, which affects the banks capital standing and market exposure, therefore, the first step was to write off large parts of the bad debts in the loans portfolio.

Our results of decreased credit risk due to the merger are similar to those in Vander Venet (1996 and 1999a) for a sample of EU domestic bank mergers of equal partners

while Cornett and Tehranian (1992) reports no change in loan quality after merger for USA bank mergers.

**Deposits Utilisation:** the total customer loan to deposits was above the industry average before merger but was not significantly different from zero. However, after merger the ratio increased to 11.61% above industry level (significant at the 10% level). This fact means that merging banks tended to make the best use of their loans capacity. The significant increase of this ratio above the industry average could be the main reason for the significant decrease in the Total capital ratio below industry average that we observed earlier. But we could not find enough evidence of abnormal performance change due to the merger (the estimate of  $\alpha$  is not significant)

**Efficiency:** as we can see from table (6.4), we have used several ratios to measure efficiency change associated with merger. The Non-interest expenses to Average assets ratio was 0.31% below the industry average before merger, but not significantly different from zero, then dropped more than two times to -0.67% after merger and was highly significant at the 1% level. The same pattern is observed for the Interest-expenses to Average assets ratio which dropped from -3.39% to -4.16%, both figures are significantly different from zero at the 10% and 1% respectively. The merger clearly provided ample opportunity to improve non-interest expenses and interest expenses ratios, the estimates of the abnormal industry-adjusted performance measures for these two ratios are -0.64% and -3.43% and are significantly different from zero at the 5% and 1% levels respectively.

We also used the components of the non-interest expenses to average assets ratio to examine where exactly the change could have come from. The ratios were the personnel expenses to average assets and the other administrative expenses to average assets. The two measures were not significantly different from zero before merger, then they improved to 0.63% and 0.32% below the industry averages respectively, for the three post-merger years, both were highly significant (at the 1% level).

When we examine the gradual change of these ratios every year, from table (6.8) we notice that the other administrative expenses to average assets ratio took a downward trend at year one post-merger, while the personnel expenses increased slightly at year one and then dropped afterwards. The latter observation might imply that the management of the merging banks could have incurred redundancy costs to deploy excess staff and improve productivity per employee afterwards, however without having data on the change in the number of staff, this conclusion might be misleading. Therefore, when we restricted the analysis to the smaller sample of 26 bank mergers (table 6.10) we notice that the personnel expenses to average assets ratio started a downward trend right after the merger, hence we can not strongly support the earlier conclusion.

Similar to the Interest expense and the non-interest expense ratio, it seems that the merging banks improved their expense ratios significantly. The estimates of the abnormal performance measures for the personnel expenses and the other administrative expense ratios are, -0.56 and -0.31 respectively, and both are highly significant at the 1% level.

We also used the general and most common cost efficiency measure, the cost to income ratio, but this measure did not provide any evidence for superior performance neither pre-merger nor post-merger.

We also examined one profit efficiency measure, that is the other operating income to average assets ratio, and we notice from table (6.4) that the ratio dropped to 0.55% below the industry average (significantly different from zero at the 5%). The downward trend can be obviously observed in tables (6.8 and 6.10). However the intercept  $\alpha$ , representing the abnormal industry-adjusted post-merger other operating income ratio, provides a clear evidence of deteriorated profit efficiency due to the merger. The estimate of  $\alpha$  is  $-0.55$  and is significantly different from zero at the 5% level.

The improvement in cost efficiency due to merger is not consistent with USA bank merger studies<sup>70</sup>, but similar to the findings of EU bank merger studies. Vander Vennet (1996 and 1999a) finds evidence of improvement in cost efficiency for the domestic mergers of equal partners, by observing lower labour cost to assets, operating expenses to assets and cost to income ratio. As Vander Vennet (1996 and 1999a) concluded, we believe the merged banks exploited synergies and reversed their pre-merger performance, which was not distinguishable from the industry level, to exceed the industry performance in the post-merger period. This supports our earlier findings, in the previous chapter, that exploiting operational and managerial

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<sup>70</sup> For studies that examined the cost ratios change associated with USA bank mergers see Rhoades (1986), Rhoades (1990), Spindt and Tarhan (1992), Berger and Humphrey (1992), Linder and Crane (1992), Srinivasan and Wall (1992), Rose (1992), DeYoung (1993), Peristiani (1993a, 1993b), Rhoades (1993), and Kwan and Eisenbeis (1999).

synergies to improve cost efficiency was the major motive for these bank mergers, and it seems that the expected synergy was realised three years after merger.

But these marriages among the European banks are not perfect without obstacles, since they examined decreased profit efficiency after merger. We believe that, as we explained earlier in chapters 2 and 3, the main challenge that is facing the financial services industry in general, is the decreased profitability level due to intense competition. Moreover the deteriorated profit efficiency, measured by the other operating expenses ratio to average assets, might be stemming from continued intense competition in the banking industry, which originally motivated these banks to merge and improve cost efficiency as we postulated earlier in Chapter 3.

***Interest Rate Risk:*** as in Cornett and Tehranian (1992), we evaluated the interest rate risk behaviour of the merging banks. We notice from table (6.4) that the interest rate risk measure decreased from 0.37% to 0.08% after merger, but these figures are not significantly different from zero anyway. Moreover, there is also no evidence of abnormal industry-adjusted post-merger performance change since the estimate of the intercept  $\alpha$  is not significantly different from zero as well. It seems it is logical to observe that, in a highly competitive and sophisticated banking environment it is less likely to reach interest rate risk situation above industry average. This is consistent with the notion that oligopolistic rents have become less prevalent in European banking (Vander Venet, 1999b).

***Liquidity Risk:*** two of the liquidity indicators that we used do not exhibit significant change due to the merger. The cash and bank accounts to assets ratio increased from

0.35% to 0.45%, while the net loan to assets ratio decreased from  $-0.01\%$  to  $-0.52\%$  below the industry average after merger, but none of the figure is significantly different from zero. Moreover, the estimates of the abnormal performance measures do not provide evidence of significant post-merger performance change as well since both estimates are not significantly different from zero as well ( $0.24\%$  and  $-0.51\%$ ).

On the other hand the third ratio we used is the liquid assets to total deposits ratio. This ratio was  $-5.82\%$  before merger and improved to  $-4.21\%$  after merger, the figures being significantly different from zero at the 10% and 5% levels respectively, but there is no obvious evidence of abnormal industry-adjusted post-merger performance change. However, the evidence is contrasted for this ratio in table (6.6) where the smaller sample of 26 mergers experience deteriorated liquid assets to total deposits ratio from  $-2.46\%$  (insignificant) to  $-4.06\%$  (significant at the 10% level) after merger. Moreover, the significant estimate of the intercept  $\alpha$  ( $-3.38\%$  significant at the 10% level) provides evidence of deteriorated abnormal industry-adjusted post-merger liquidity. The latter result is consistent with the findings of Vander Venet (1996) for 492 European bank mergers.

#### **6.4.4 The Relation between Cash Flow Returns and Market Returns.**

In chapter three we examined the market reaction to the announcement of the banks merger in our large sample of 102 deals. The results of the analysis revealed that the market reacted positively to these bank merger announcements, which implies that the capitalised future economic gain, by the market, of these mergers was positive. After we have examined the change in post-merger operating performance, it seems our results are not supportive of this hypothesis. But in order to form a final conclusion

about this issue, we need first to re-estimate the market reaction to the merger announcement for the deals that are included in our operating performance analysis, that is the 35 deals and observe if the market reacted positively to these mergers. Second, we will perform further analyses, which aim to correlate the market return at merger announcement with the post-merger operating performance.

In table (6.11) Panel A we report the cumulative abnormal stock returns for the 35 merger deals that we study in this chapter. We report the returns to targets, acquirers and the combined return, that is, the weighted-average return for both parties<sup>71</sup>. Returns reported, are the two-day merger announcement returns for the (-1,0) window. The returns for target banks is 1.49% and is significantly different from zero, while the acquirer bank return is not significant. The weighted-average return for the target and acquirer banks is calculated based on the weights of the market value of equity for each party one month before the announcement of the merger, and shows that the weighted-average return is 0.5% and is highly significant. This implies that the market reacted positively to these mergers and expected future improvement in the operating performance. On the other hand comparing this result to the findings of examining the change in cash flow return, we notice that the market expectations were not realised in the post-merger period. However, we move on to perform another test by correlating the market return at merger announcement with the post-merger cash flow returns.

We follow two procedures, the first one was used in Healy et al., (1992) and is based on regressing the industry-adjusted mean post-merger cash flow return ( $IACR_{post,i}$ ) on

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<sup>71</sup> The calculations of the abnormal returns were extracted from chapter three where we used the event study methodology to examine the market reaction to merger announcement.



two independent variables, these are, the industry-adjusted mean pre-merger cash flow return ( $IACR_{pre,i}$ ) and the market return at merger announcement ( $\Delta V/V$ ), which represent the change in value of assets at merger announcement. The cross-sectional regression used is the following:

$$IACR_{post,i} = \alpha + \beta IACR_{pre,i} + \theta \Delta V/V + \varepsilon_i \quad (2)$$

( $\varepsilon_i$  is an error term).

$\Delta V/V$  measures the asset return, which is the unlevered abnormal return at merger announcement. Therefore,  $\theta \Delta V/V$  represents the abnormal industry-adjusted cash flow return, since this is implied by the hypothesis that the merger announcement abnormal returns (whether they are positive, negative or nil) reflect the capitalised value of future cash flow change. This means  $\Delta V/V = (1/\theta) * \Delta CF/V$ , where  $\Delta CF/V$  is the abnormal industry-adjusted cash flow changes, and,  $1/\theta$  is the discount factor, that is,  $\theta$  is the discount rate at which the future cash flow changes are capitalised by the market.

Asset returns at merger announcement  $\Delta V/V$  are weighted averages of returns to equity and debt:

$$\Delta V/V = (\Delta E/E) * E/V + (\Delta D/D) * D/V \quad (3)$$

Assuming that the value of debt does not change at take-over announcements, asset returns is equal to equity returns multiplied by the equity-to-assets ratio<sup>72</sup>. We use the

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<sup>72</sup> Healy, Palelpu, and Ruback (1992): Does corporate performance improve after mergers? Journal of Financial Economics, Vol. 31, page 158.

value of assets and equity at the beginning of the merger year to compute the equity-to-assets ratio. Therefore, we run the cross-sectional regression in equation (2) with the  $\Delta V/V$  being the abnormal stock return at merger announcement multiplied by the equity-to-assets ratio. Moreover, we rerun the cross-sectional regression using the abnormal stock return instead of the abnormal asset return and observe whether the results will differ.

The second procedure, following other studies such as: Cornett and Tehranian (1992) and Pilloff (1996), to investigate the relation between the market return and the post-merger operating performance is by calculating the Pearson correlation coefficients between the abnormal stock return and the post-merger operating performance improvements.

In Panel B of table (6.11) we report the results of the cross-sectional regression equation (2). We included the intercept term in the equation and tested for significance whether it is different from zero.

From the results we notice that the coefficient of the industry-adjusted pre-merger cash flow return is positive (0.77) and highly significant at the 1% level. The coefficient of the abnormal asset return is  $-2.14$  but is not significantly different from zero, these findings confirm earlier results that the positive  $IACR_{post}$  are due to the continuation of pre-merger performance, moreover that there is no relation between the industry-adjusted post-merger cash flow return and the market return. The latter finding is not consistent with the hypothesis that the stock market revaluation of merging firms at merger announcements reflects expected future economic gains.

**TABLE (6.11): Abnormal Stock Returns at Merger Announcements for Target, Acquirer and Combined Banks, and Tests of the Relation between Abnormal Stock/Asset Returns and the Industry-adjusted Post-merger Cash Flow Returns for 35 Target and Acquiring European Banks Merging between 1992 and 1997.**

<b>Panel A: Abnormal Stock Return at Merger announcement</b>			
CAR	Target	Acquirer	Combined
(-1,0)	1.49%	0.25%	0.50%
Z test	(33.02)***	0.0145	(12.05)***

<b>Panel B: Relation between Mean industry-adjusted post-merger cash flow return and Abnormal asset return at merger announcement.</b>			
$IACR_{post,l} = -0.138\% + 0.77 IACR_{pre,l} - 2.14 (\Delta V/V)$			
	(-0.17)	(4.97)***	(-0.51)
$R^2 = 0.45$			
$Adjusted R^2 = 0.41$			
$F\text{-statistic} = 12.935^{***}$			
$N = 35$			

<b>Panel C: Relation between Mean industry-adjusted post-merger cash flow return and Abnormal stock (equity) return at merger announcement.</b>			
$IACR_{post,l} = -0.186\% + 0.74 IACR_{pre,l} + 0.066 (\Delta E/E)$			
	(-0.22)	(4.96)***	(0.12)
$R^2 = 0.44$			
$Adjusted R^2 = 0.41$			
$F\text{-statistic} = 12.717^{***}$			
$N = 35$			

The numbers in parentheses in Panels B and C are White's (1980) heteroskedasticity-consistent t-statistics  
 (\*) Significantly different from zero at the 10% level, using two-tailed test  
 (\*\*) Significantly different from zero at the 5% level, using two-tailed test  
 (\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

Assuming the capital markets are efficient, we conclude that the market positive revaluation of these bank mergers could be expectations that were not realised due to other bank specific negative circumstances post-merger or that these banks have over-estimated their potentials for improving cost efficiency and profitability.

In Panel C of table (6.11) we report the results of the regression using the abnormal stock returns instead of the abnormal asset returns. We observe similar pattern of no

significant relation between the  $IACR_{post}$  and the abnormal stock return since the corresponding coefficient is 0.066 but not significantly different from zero.

**TABLE (6.12): Abnormal Stock Returns at Merger Announcements for Target, Acquirer and Combined Banks, and Tests of the Relation between Abnormal Stock/Asset Returns and the Industry-adjusted Post-merger Cash Flow Returns for 26 Target and Acquiring European Banks Merging between 1992 and 1996.**

<b>Panel A: Abnormal Stock Return at Merger announcement</b>			
CAR	Target	Acquirer	Combined
(-1,0)	0.98%	0.20%	0.19%
Z test	(32.669)***	0.0104	(10.99)***

**Panel B: Relation between Mean industry-adjusted post-merger cash flow return and Abnormal asset return at merger announcement**

$$IACR_{post,l} = -0.55\% + 0.72 IACR_{pre,l} - 2.15 (\Delta V/V)$$

(-0.49)    (3.76)\*\*\*    (-0.07)

$$R^2 = 0.39 \qquad F\text{-statistic} = 7.34^{***} \quad N = 26$$

$$\text{Adjusted } R^2 = 0.34$$

**Panel C: Relation between Mean industry-adjusted post-merger cash flow return and Abnormal stock (equity) return at merger announcement**

$$IACR_{post,l} = -0.52\% + 0.70 IACR_{pre,l} - 0.14 (\Delta E/E)$$

(-0.46)    (3.80)\*\*\*    (-0.15)

$$R^2 = 0.39 \qquad F\text{-statistic} = 7.25^{***} \quad N = 26$$

$$\text{Adjusted } R^2 = 0.33$$

The numbers in parentheses in Panels B and C are White's (1980) heteroskedasticity-consistent t-statistics  
 (\*) Significantly different from zero at the 10% level, using two-tailed test  
 (\*\*) Significantly different from zero at the 5% level, using two-tailed test  
 (\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

We also performed the same analysis for the smaller sample of 26 bank mergers and reported the results in table (6.12) above. In Panel A we show the cumulative abnormal stock return for the target, acquirer banks and the weighted-average CAR for both parties, the CAR are lower than those for the 35 bank mergers, however the CAR to the target and the weighted-average CAR are highly significant. We also reported the results of the cross-sectional regression equation (2), using the abnormal

asset return at merger announcement in Panel B and abnormal stock return in Panel C. The results we obtain are similar to those reported in table (6.11) confirming our conclusion that the market reaction at merger announcement can not explain the post-merger operating performance.

We also calculate the Pearson correlation coefficient between the abnormal stock return and the industry-adjusted performance improvements and we report the results in Panel A of table (6.13). It appears that none of the performance changes is correlated with the abnormal stock return, confirming earlier evidence that the market is unable to anticipate any subsequent performance improvements at the time of the merger announcement for these merger deals. We also performed the analysis for the smaller sample of 26 mergers and obtained similar findings. We reported the latter results in table (6.13) Panel B.

#### **6.4.5 Determinants of Industry-adjusted Post-merger Cash Flow Return.**

After we have examined the operating performance change after the merger, it was obvious that these mergers did not lead to a significant improvement in the cash flow return three years after the merger took place. We intend at this stage to examine whether the operating cash flow return can be predicted in advance, i.e. whether the merging institutions possess certain characteristics during the pre-merger period which enable them to outperform the industry or to improve performance post-merger. To accomplish this task we run a cross-sectional regression using the  $IACR_{post}$  or the change in the  $IACR$  as the dependent variable and the pre-merger performance measures that we have used in our analysis so far, as the independent variables.

**TABLE (6.13): Correlation between Market Return and Post-merger Industry-adjusted Cash Flow Returns.**

In panel A we report correlation between two-day (-1,0) announcement period abnormal asset/stock returns and the difference between post-merger and pre-merger industry-adjusted performance measures for 35 bank mergers.

In Panel B we report the results for 26 bank mergers only.

Change in Performance Measures	Panel A		Panel B	
	Pearson Correlation between Abnormal Stock return	N = 35 Abnormal Asset Return	Pearson Correlation between Abnormal Stock return	N = 26 Abnormal Asset Return
$\Delta$ IACR	-0.026	-0.172	-0.067	-0.177
Return on Average Assets (ROAA) - %	0.228	0.092	0.120	0.086
Return on Average Equity (ROAE) - %	-0.001	0.042	-0.016	0.062
Total Capital Ratio - %	0.232	-0.196	-0.025	-0.292
Equity to Deposits %	-0.162	-0.197	-0.133	-0.398
Equity to Total Customer Loans %	-0.094	-0.202	-0.029	-0.195
Capital to Assets Ratio %	0.049	-0.292	-0.025	-0.283
Loan Loss Reserve / Gross Loans - %	0.049	-0.166	-0.046	-0.199
Loan Loss Prov / Net Int Rev - %	-0.003	0.000	-0.184	0.044
Non Perf Loans / Gross Loans - %	0.045	-0.200	-0.038	-0.223
Total Customer Loans To Deposits %	-0.095	-0.247	0.053	-0.253
Non Int Exp / Avg Assets - %	0.092	-0.245	-0.093	-0.322
Interest Expenses To Ave Assets	0.018	-0.151	-0.017	-0.148
Non-Interest Exp To Interest Expe	0.073	-0.100	0.026	-0.167
Oth Op Inc / Avg Assets - %	0.232	-0.207	0.084	-0.366
Other Ope Inc To Inte Income	0.046	-0.021	0.116	0.008
Personnel Expenses To Ave Assets	0.053	-0.117	-0.020	-0.121
Other Admin Expen to Ave Assets	0.114	-0.086	0.015	-0.144
Cost to Income Ratio - %	-0.016	-0.065	-0.122	-0.085
Net Interest Rev To Earning Assets	0.138	0.083	0.183	0.057
Cash and Due from Banks To Tot Assets	0.302	0.099	0.116	0.097
Net Loans / Total Assets - %	-0.154	-0.003	0.156	0.093
Liquid Assets / Tot Dep & Bor - %	0.076	-0.153	-0.268	-0.244

In table (6.14), below we report the results for five models. For the first two models we used the  $IACR_{post}$  as the dependent variable for the total sample of 35 mergers. Whereas in the other three models we used the change in  $IACR$  as the dependent variable for the large sample of 35 mergers in model 3, and the smaller sample of 26 mergers in models 4 and 5. All the models we used provided consistent results across all the performance measures, the dependent variables, and the samples that we have used.

The profitability variables are negative and significant in all the models that we used. However, we did not include the two profitability variables, ROAA and ROE, in the same model in order to reduce the multicollinearity problem. The negative sign of the coefficient implies that the pre-merger high profitability status of the merging parties can not provide support for the future cash flow return. This could be due to the fact that profitability levels are already exhausted and that the banks could be operating close to the efficient frontier in terms of profits. This is also consistent with the notion that banks which are performing badly pre-merger have high potentials for improving performance when they merge, a finding consistent with the conclusion of Berger and Humphrey (1992) and DeYoung (1993).

The coefficient of the Total capital ratio is negative and significant in model 1 while it is not in model 2. Moreover the ratio of capital to total assets has an opposite sign (positive) and it is significant in all the models, which include this variable. In our view this highlights the importance of the capital to assets ratio has on the soundness of the financial institutions, since it represents the core capital of the bank. A high capital to assets ratio before merger may have provided the merging banks with higher

potentials for increasing their investment and exposure in the market. Whereas the negative sign of the Total capital ratio, which already includes the core capital of the bank, reflects that the merging banks have excess capitalisation, this could hinder their profitability and revenue ratios in the future. In other words high total capital ratio before merger may lead to required return on capital, which is not employed.

The ratios of equity to deposits and equity to customer loans have both positive and significant coefficients. This stresses the importance of being able to cover the deposits and finance the customer loans from the shareholders resources invested in the bank. We believe this is consistent with having strong core capital before merger.

The loan quality coefficients support our earlier finding in chapter four that acquirers are interested in targets with a conservative policy regarding their credit assessment. We observe a positive and significant coefficient for the Loan Loss Reserves to Gross Loans and the loan loss provisions to interest revenue ratios in all the models. This result means that merging banks with a conservative credit policy have the potential to escape the risk of downturns in the economy, which may lead to large credit risks and maybe losses afterwards. The coefficient of the non-performing loans to gross loans ratio supports this argument since it carries a negative sign and it is significantly different from zero. Merging banks, which have high non-performing loans, have probably bad credit policy standards and this caused decreasing cash flow returns in the post-merger period.



The Customer loans to deposits ratio is positive and significant in model 2. The high ratio provide the support for increasing the cash flow return generated by the interest and commissions received compared to the interest and commissions paid.

The efficiency of the merging financial institutions in the pre-merger period is the main driving force for improved cash flow return. Consistent with other findings (such as Pilloff, 1996) improving cost efficiency is the main motive for merger. The coefficients of the non-interest expenses, the interest expenses, the other administrative expenses, and the cost to income ratios are all negative and significant, implying that the positive  $IACR_{post}$  and the improvement in this return is associated with the cost efficiency status of the merging banks during the pre-merger period.

On the other hand the coefficient of the personnel expenses to assets ratio is positive and significant which could mean that the improvement in  $IACR_{post}$  (model 3) is associated with good quality human capital before merger, the personnel expenses ratio might be a proxy for the quality of human capital which is able to generate the banks cash flow in the post-merger period.

However, the positive  $IACR_{post}$  and the improvement in  $IACR$  is associated with high other operating income to assets ratio. This is evident by the positive and significant coefficient in models 1,4 and 5. On the other hand, the positive and significant coefficients for the net loans to assets and the liquidity ratios imply that high net loans and liquidity position before merger provide ample opportunities for positive and increased  $IACR$  in the post-merger period.

**TABLE (6.14): Determinants of the Cash flow returns.**

In the first two models we use the  $IACF_{post}$  as the independent variable regressed on the pre-merger measures of the large sample of 35 merger deals. In the other three models we use the change in  $IACF$  as the dependent variable regressed on the pre-merger measures of 35 merger deals in model 3 and 26 merger deals in models 4 and 5.

Independent Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	$IACF_{post}$	$N = 35$ t-Statistics	$IACF_{post}$	$N = 35$ t-Statistics	$IACF_{post}$	$N = 35$ t-Statistics	$IACF_{post}$	$N = 26$ t-Statistics	$IACF_{post}$	$N = 26$ t-Statistics
(Constant)	-0.878	-0.827	-0.836	-0.761	-0.825	-1.425	-0.035	-0.060	-0.090	-0.195
Return on Average Assets (ROAA) - %	-0.111	-2.326**	-0.100	-2.322**	-1.511	-2.853***	-0.071	-4.229***	-0.073	-5.751***
Return on Average Equity (ROAE) - %	-0.290	-2.490**	-0.164	-1.478						
Total Capital Ratio - %										
Equity to Deposits %	0.313	2.279**	0.299	2.380**	0.042	1.078	0.113	1.098	0.117	1.433
Equity to Total Customer Loans %			0.469	3.107***	0.182	2.344**	0.221	3.054**	0.231	3.907***
Capital to Assets Ratio %	1.373	3.876***	1.719	4.385***	0.248	2.658**	0.155	1.898*	0.129	1.916*
Loan Loss Reserve / Gross Loans - %					0.694	2.390**	1.142	6.085***	1.113	8.238***
Loan Loss Prov / Net Int Rev - %			-0.929	-4.041***	0.055	2.894***	0.036	1.776	0.038	3.259***
Non Perf Loans / Gross Loans - %					-0.343	-2.084**	-0.774	-5.172***	-0.758	-6.933***
Total Customer Loans To Deposits %	0.025	1.241	0.051	3.121***						
Non Int Exp / Avg Assets - %										
Interest Expenses To Ave Assets					-0.329	-2.337**	-2.214	-2.702**	-2.270	-5.313***
Non-Interest Exp To Interest Expe			0.011	1.788*						
Oth Op Inc / Avg Assets - %							0.006	0.640	0.667	1.926*
Other Ope Inc To Inte Income	0.181	2.084**					0.542	1.015	0.221	6.778***
Personnel Expenses To Ave Assets			0.878	0.966	2.502	3.197***	0.185	2.865**		
Other Admin Expen to Ave Assets	-2.893	-1.982*	-4.844	-2.713**	-1.768	-1.384	0.108	0.238		

Continued Table (6.14)

	-0.119	-4.231***	-2.847	-4.233***	-2.080	-4.352***	-0.051	-1.766	-0.052	-2.386**
<b>Cost to Income Ratio - %</b>										
<b>Net Interest Rev To Earning Assets</b>										
<b>Cash and Due from Banks To Tot Assets</b>	-2.595	-3.547***	-2.847	-4.233***	-2.080	-4.352***	-0.201	-0.473		
<b>Net Loans / Total Assets - %</b>	0.135	2.498**	0.121	2.482**	0.116	3.551***	0.311	4.953***	0.315	11.773***
<b>Liquid Assets / Tot Dep &amp; Bor - %</b>									0.234	7.250***
	<b>R<sup>2</sup></b>	<b>0.70</b>	<b>R<sup>2</sup></b>	<b>0.78</b>	<b>R<sup>2</sup></b>	<b>0.83</b>	<b>R<sup>2</sup></b>	<b>0.97</b>	<b>R<sup>2</sup></b>	<b>0.97</b>
	<b>Adjusted R<sup>2</sup></b>	<b>0.58</b>	<b>Adjusted R<sup>2</sup></b>	<b>0.66</b>	<b>Adjusted R<sup>2</sup></b>	<b>0.74</b>	<b>Adjusted R<sup>2</sup></b>	<b>0.92</b>	<b>Adjusted R<sup>2</sup></b>	<b>0.94</b>
	<b>F Statistics</b>	<b>5.73***</b>	<b>F Statistics</b>	<b>6.59***</b>	<b>F Statistics</b>	<b>9.17***</b>	<b>F Statistics</b>	<b>17.17***</b>	<b>F Statistics</b>	<b>29.40***</b>

The t-statistics White's (1980) heteroskedasticity-consistent t-statistics

(\*) Significantly different from zero at the 10% level, using two-tailed test

(\*\*) Significantly different from zero at the 5% level, using two-tailed test

(\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

#### **6.4.6 Do Cash Flow return on Customer loans and Cash flow return on Deposits provide a different picture?**

Banks are mostly involved in traditional activities such as granting loans and attracting deposits from the public. Customer loans are the major source of bank income, in the form of interest income, while deposits are the major use of bank expenses in the form of interest expense. As a final analysis step we decided to use the customer loans and the total deposits as the basis for examining the change in cash flow return, that is we intend to calculate the change in cash flow return on customer loans and deposits pre and post-merger (we are not aware of any study that followed this procedure in the literature of bank mergers). To perform the analysis we followed the same steps and procedures that we adopted for examining the change in cash flow return on market value of assets in sections 6.4.1 and 6.4.2.

In tables (6.15) and (6.16) we report the results for the operating cash flow return on customer loans. In table (6.15) we report the results for the total sample of 35 bank mergers and we observe that the (unadjusted) bank mean cash flow return on customer loans was 3.75%, during the pre-merger period, then increased to 4.14% for the three years post-merger period; however, the increase was not significantly different from zero. The same pattern is observed for the sample of 26 bank mergers in table (6.16) where the ratio increased from 3.67% to 4.29% but the increase was not significantly different from zero as well.

**TABLE (6.15): Mean Cash Flow Return on Customer Loans (Total Sample).**

The table shows the mean operating cash flow return on Total Customer Loans for 35 combined target and acquirer banks in years surrounding mergers completed in the period 1992 to 1997. It also shows the abnormal industry-adjusted returns in Panel B.

<b>Panel A: Pre and Post-merger operating cash flow returns</b>					
Year relative to merger	Bank Mean	Industry adjusted mean	% positive	Number of observations	T-statistics
-2	3.93	-1.85	34.48%	29	(-1.79)*
-1	3.57	-2.40	35.29%	35	(-2.39)**
Mean Annual performance for years -2 and -1					
	3.75	-2.12	34.29%	35	(-1.73)*
1	4.40	0.34	65.71%	35	0.31
2	4.09	0.86	61.54%	26	0.77
3	3.93	0.18	60.00%	15	0.19
Mean Annual performance for years 1 to 3					
	4.14	0.46	60.00%	35	0.13

<b>Panel B: Abnormal industry-adjusted operating cash flow returns (t-values in parentheses)</b>					
$IACR_{post,l} = 1.00\% + 0.473 IACR_{pre,l}$ $R^2 = 0.22$ $F\text{-statistic} = 9.417^{***}$ $N = 35$ (0.875) (2.793)** $Adjusted R^2 = 0.198$					

The numbers in parentheses are White's (1980) heteroskedasticity-consistent t-statistics  
 (\*) Significantly different from zero at the 10% level, using two-tailed test  
 (\*\*) Significantly different from zero at the 5% level, using two-tailed test  
 (\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

Our next step was to adjust for the industry effects as we did earlier. We report the results in column 3 of each one of the tables (6.15) and (6.16). The industry-adjusted figures, in table (6.15) column 3, show that the merging banks were lagging behind the industry for the pre-merger period. For instance, in year -2 the industry-adjusted cash flow return on customer loans was -1.85% (significant at the 10% level), while in year -1 the ratio was even lower at -2.4% (significant at the 5% level). The ratio, afterwards, increased to an average of 0.46% above the industry level for the three years after merger. This increase is also confirmed if we look at the results of the sample of 26 bank mergers in table (6.16) column 3. But it seems that, the ratio was

not significantly lower than the industry figure in the pre-merger period nor was it significantly higher in the post-merger period.

**TABLE (6.16): Mean Cash Flow Return on Customer Loans (26 Deals).**

The table reports the mean operating cash flow return on Total Customer Loans for 26 combined target and acquirer banks in years surrounding mergers completed in the period 1992 to 1996. It also shows the abnormal industry-adjusted returns in Panel B.

<b>Panel A: Pre and Post merger operating cash flow returns</b>					
Year relative to merger	Bank Mean	Industry adjusted mean	% positive	Number of observations	T-statistics
-1	3.67	-1.55	46.15%	26	-1.17
1	4.49	1.30	73.08%	26	1.09
2	4.09	0.86	61.54%	26	0.77
Mean Annual performance for years 1 and 2					
	4.29	1.08	65.38%	26	0.94
<b>Panel B: Abnormal industry-adjusted operating cash flow returns (t-values in parentheses)</b>					
$IACR_{post,t} = 1.91\% + 0.54 IACR_{pre,t}$ $R^2 = 0.39$ $F\text{-statistic} = 15.13^{***}$ $N = 26$ (1.853)*     (3.7354)*** $Adjusted R^2 = 0.36$					

The numbers in parentheses are White's (1980) heteroskedasticity-consistent t-statistics  
 (\*) Significantly different from zero at the 10% level, using two-tailed test  
 (\*\*) Significantly different from zero at the 5% level, using two-tailed test  
 (\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

In order to test whether the change in performance is due to the merger or is a continuation of the pre-merger performance, we run the cross-sectional regression equation explained in section 6.3.2.2 and we report the results in Panel B of tables (6.15) and (6.16). From table (6.15) Panel B we can see that the estimate of  $\alpha$ , the abnormal industry-adjusted cash flow return on customer loans, is 1% but not significantly different from zero. However, if we look at the results in table (6.16) for the sample of 26 bank mergers, we can see that the estimate of  $\alpha$  is slightly higher, at

1.91% and slightly significant at the 10% level, which confirms that part of the change in the ratio is due to the merger of both banks.

**TABLE (6.17): Mean Cash Flow Return on Total Deposits (Total Sample).**

The table reports the mean operating cash flow return on Total Deposits for 35 combined target and acquirer banks in years surrounding mergers completed in the period 1992 to 1997. It also shows the abnormal industry-adjusted returns in Panel B.

Panel A: Pre and Post-merger operating cash flow returns					
Year relative to merger	Bank Mean	Industry adjusted mean	% positive	Number of observations	T-statistics
-2	3.86	-1.13	41.38%	29	-1.14
-1	3.27	-1.84	44.12%	35	(-2.16)**
Mean Annual performance for years -2 and -1					
	3.57	-1.48	45.71%	35	-1.24
1	4.54	1.28	74.29%	35	0.89
2	4.31	1.72	65.38%	26	0.91
3	3.23	0.08	60.00%	15	0.09
Mean Annual performance for years 1 to 3					
	4.03	1.03	65.71%	35	0.76
Panel B: Abnormal industry-adjusted operating cash flow returns (t-values in parentheses)					
$IACR_{post,l} = 2.10\% + 0.824 IACR_{pre,l}$		$R^2 = 0.30$	$F\text{-statistic} = 14.15^{***}$	N = 35	
(1.245) (1.775)*		Adjusted $R^2 = 0.28$			

The numbers in parentheses are White's (1980) heteroskedasticity-consistent t-statistics

(\*) Significantly different from zero at the 10% level, using two-tailed test

(\*\*) Significantly different from zero at the 5% level, using two-tailed test

(\*\*\*) Significantly different from zero at the 1% level, using two-tailed test

On the other hand considering now the cash flow return on total deposits, we observe a similar pattern for the unadjusted figures reported in tables (6.17) and (6.18), were the merging banks improved their unadjusted cash flow return on deposits after the merger. Similar results are observed for the industry-adjusted figures however, the ratios in the pre-merger and post-merger period were not significantly different from

zero. Moreover, the estimates of  $\alpha$ , the abnormal industry-adjusted cash flow return on deposits, in both tables (6.17) and (6.18) are not significantly different from zero.

**TABLE (6.18): Mean Cash Flow Return on Total Deposits (26 Deals).**

The table reports the mean operating cash flow return on Total Deposits for 26 combined target and acquirer banks in years surrounding mergers completed in the period 1992 to 1996. It also shows the abnormal industry-adjusted returns in Panel B.

<b>Panel A: Pre and Post merger operating cash flow returns</b>					
Year relative to merger	Bank Mean	Industry adjusted mean	% positive	Number of observations	T-statistics
-1	3.31	-1.01	50.00%	26	-0.82
1	4.68	2.15	76.92%	26	1.18
2	4.31	1.72	65.38%	26	0.91
Mean Annual performance for years 1 and 2					
	4.50	1.93	73.08%	26	1.04
<b>Panel B: Abnormal industry-adjusted operating cash flow returns (t-values in parentheses)</b>					
$IACR_{post,l} = 2.9\% + 0.965 IACR_{pre,l}$ $R^2 = 0.41$ $F\text{-statistic} = 17.18^{***}$ $N = 26$ (1.609) (2.075)** $Adjusted R^2 = 0.39$					

*The numbers in parentheses are White's (1980) heteroskedasticity-consistent t-statistics*

*(\*) Significantly different from zero at the 10% level, using two-tailed test*

*(\*\*) Significantly different from zero at the 5% level, using two-tailed test*

*(\*\*\*) Significantly different from zero at the 1% level, using two-tailed test*

In sum the evidence of improved performance due to the merger event is very thin and is limited to the ratio of industry-adjusted cash flow return on customer loans for the sample of 26 bank mergers. Moreover, we noticed that both ratios that we examined in this section showed an improvement after the merger. This result is not consistent with the result that we obtained for the ratio of industry-adjusted cash flow return on market value of assets. We explain this as follows:



1. The improvement in these two measures (cash flow return on loans and cash flow return on deposits) could be driven by faster growth in loans and deposits in the industry compared to the merging banks in our sample. This fact can be observed in tables (6.19) and (6.20), where it is clear that the industry growth rates in customer loans and deposits were higher than the merging banks growth rates for every year after merger compared to the first year before merger.

**TABLE (6.19): Bank and Industry growth in Total Customer Loans**

The table shows post-merger bank and industry growth in Total Customer Loans for 35 combined target and acquirer banks in mergers completed in the period 1992 and 1997.

Growth Period in Relation to Merger	Bank loans growth rate	% Positive	Median Industry loans growth rate	% Positive
	<i>Median</i>		<i>Median</i>	
Year -1 to 1	9.10	71%	14.74	80%
Year -1 to 2	20.69	65%	36.07	81%
Year -1 to 3	20.72	93%	45.26	87%

**TABLE (6.20): Bank and Industry growth in Total Deposits.**

The table shows post-merger bank and industry growth in Total Deposits for 35 combined target and acquirer Banks in mergers completed during the period 1992 and 1997.

Growth Period in Relation to Merger	Bank deposits growth rate	% Positive	Industry deposits growth rate	% Positive
	<i>Median</i>		<i>Median</i>	
Year -1 to 1	5.56	54%	23.89	89%
Year -1 to 2	6.36	58%	39.44	88%
Year -1 to 3	20.79	67%	71.14	87%

2. The improvement in *IACR* on customer loans may still be consistent with the deterioration in *IACR* on assets since a large part of the banks earning assets consist of other investments such as bond and debentures holding and inter-bank accounts which do not earn as much income as customer loans. In the sense that banks are supposed to earn enough income and increase cash flow inasmuch as to cover the “satisfy” its total assets base. Therefore, higher returns are expected from investments in customer loans, then in other earning assets in order to cover the opportunity cost of not earning any return from Non-earning assets such as Central bank reserves accounts, and tangible and intangible fixed assets.

## **6.5 Conclusion.**

In this chapter we provided more updated findings on the post-merger operating performance in European banking. We used a sample of bank mergers between 1992 and 1997, and we believe this is the only and most recent study that covered a period starting after the adoption of the Single Market Programme in 1992.

To examine the post-merger operating performance in European banking merger, we followed the methodology of Healy et al., (1992) which was then adopted and applied by Cornett and Tehranian (1992) on USA bank merger. Our findings revealed that post-merger industry-adjusted cash flow return has decreased compared to the pre-

merger situation however the change was not abnormal but the positive  $IACR_{post}$  are still due to the continuation of pre-merger bank-specific performance.

We also examined the change in performance using traditional accounting ratios and found that the merger led to a decrease in the ROA ratio to significant level below the industry average three years after mergers which was mainly due to lower 'other operating income' ratio. The intense competition might be the main reason for this result. The capitalisation of the banks dropped as a result of the increase in customer loans faster than the increase in the equity figure. The merging banks improved their loan quality by writing off large parts of the bad debts in their portfolios. In addition, the main positive outcome of the merger was that the improvement in cost efficiency represented by both the interest expenses and the non-interest expense ratios, such as the personnel expenses and the other administrative expenses. It seems that the merging banks benefited by exploiting operational and managerial synergies to improve their cost efficiency after the merger, however the improvement was not too large to replace the decreased profitability and therefore the industry-adjusted cash flow return did not improve after merger.

We examined the relationship between the post-merger performance and the market reaction at merger announcement as well but could not find any evidence of such a relationship. Assuming the capital markets are efficient, we believe that the market positive revaluation of these bank mergers could be expectations that were not realised due to other bank specific negative circumstances post-merger or that these banks have over-estimated their potentials for improving cost efficiency and profitability.

In this chapter we also searched for the determinants of  $IACR_{post}$  and the change in the  $IACR$  and found that low profitability levels pre-merger could provide opportunity for improvement since they mean that there is profit inefficiency that can be remedied and improved after merger. On the other hand, We observed that a conservative credit policy and good cost efficiency status pre-merger provide the support for improved cash flow returns after merger.

We also performed a final test using the cash flow return on customer loans and cash flow return on deposits. Both ratios improved but not significantly, however the evidence of a merger-related improvement was very thin and was only observed for the cash flow return on customer loans in the sample of 26 bank mergers.

## **CHAPTER SEVEN:**

### **CONCLUSION**

#### **7.1 Introduction.**

The level of consolidation in the financial services industry has been accelerating rapidly. This merger wave started by the early nineties and was caused by many forces of change that affected the competitive position of banks and other financial services firms around the world and especially in Europe (deregulation, technological development, the globalisation, and the introduction of the Euro). The introduction of the Second Banking Directive and the Capital Adequacy Directive removed restrictions and paved the way in front of banks to widen the scope of their business functionally and geographically. Moreover, the rapid development in technology also changed the mechanisms of distribution, the product bundling, allowed the structuring of new products, and provided cost cutting potentials through economy of scale and less dependence on human intervention. Consequently, the competition became more intense in the market, which put more pressure on the profitability levels. Furthermore, managers are forced to consider strategic decisions such as mergers. Therefore, the M&As activity in the financial services industry has accelerated and reached unprecedented levels around the end of the twentieth century. This was tempting to explore the impact on bank performance change, which motivated us to do this research.

## **7.2 Summary of the Findings.**

In chapter two we provided a review of the previous literature on M&As and we concentrated on the studies that examined the performance of the parties involved and the market valuation of M&As. We also exhibited the factors that are accelerating the merger activities around the world in general and in Europe, afterwards we reviewed the literature on M&As motives.

In chapter three we examined the market valuation for the M&A deals that took place in the European Financial services industry between 1987 and 1999; we found that the market reacted positively to the announcement of these mergers. According to various deal characteristics we found that higher returns were earned by deals between commercial banks compared to cross-product deals, merger deals compared to acquisition deals, cross-border mergers compared to national mergers, and by deals settled in a combination of cash, equity and loan notes.

In chapter four we searched for the determinants of target returns. Our sample consisted of 66 bank mergers in Europe and we found that target returns are driven by high target profitability and lower capitalisation before merger. Moreover, we found that the market regards high 'loan loss reserves to gross loans' ratio for targets as a source of comfort as it implies a conservative policy by the target bank. Other drivers of high target returns were better efficiency status relative to the acquiring bank and high loans to deposits ratio for the targets since this signal that they are efficient and aggressive in utilising their deposits resources.

In chapter five we searched for the motives of the European bank M&As and tested for the existence of three major motives of bank M&As i.e. synergy, agency, and hubris by examining the relations between target and total gains and between acquirer and target gains.

Our main finding suggested that synergy, rather than agency, is the dominant motive for the M&A in the European financial industry and hubris may be the main explanation for observing positive target gains and zero or negative acquirer gains.

Because the banking industry is known for being subject to scrutiny and close monitoring from the local and international supervisory bodies we did not find that agency effects form a major motive in these mergers.

In chapter six we examined the post-merger operating performance and wanted to observe whether the market and the managers' expectations of achieving synergistic gains had been realised. Although we found that post-merger industry-adjusted cash flow return has decreased compared to the pre-merger situation, yet the change was not abnormal. However the positive  $IACR_{post}$  were due to the continuation of pre-merger bank-specific performance.

Using traditional accounting ratios we found that the merger led to a decrease in the ROA ratio to a significant level below the industry average three years after mergers which was mainly due to lower other operating income ratio. The capitalisation of the banks dropped as a result of the increase in customer loans faster than the increase in the equity figure. The merging banks got involved in cleaning up their loan portfolio

which led to improvement in their loan quality. In addition, the main positive outcome of the merger was the improvement in expense ratios. Therefore, we find that the merging banks succeeded, only marginally, in exploiting operational and managerial synergies to improve their cost efficiency after merger, since the improvement was not too large to support the decreased profitability and boost the industry-adjusted cash flow returns.

We also could not find any relationship between the post-merger performance and the market reaction at merger announcement, which means that the positive market reaction to merger announcements effectively constituted expectations that failed to be realised. We also found that a low profitability level, a conservative credit policy, and a good cost efficiency status pre-merger could provide ample opportunity for improvement in *IACR*.

### **7.3 Implications of the Research Results.**

Our findings imply that the intense competition and the pressure on profitability is spreading a gloomy picture of the bank performance in the future in general, and is encouraging banks to consolidate their market position. Banks seem to have planned to benefit from in-market consolidation and mergers of equal deals to exploit scale economy and synergistic gains rather than economies of scope. The objective from these bank mergers is to consolidate market position and improve efficiency in order not to suffer from profitability deterioration due to the intense competition in the market.



Our results imply also that there is a certain threshold for acceptable attractive capitalisation. Acquirers are looking at the credit policy of the target and valuing a conservative credit policy, which takes into account any possible future losses in the loan portfolio. Secondly, acquirers are also valuing the management team of the target bank for good credit assessment skills and this might add to the benefit that the acquirers are expecting to gain by acquiring good quality intellectual capital. Moreover, the assets growth of the target compared to the acquirer is a driving force to increase profitability prospects and presence in the market for the acquirer.

On the other hand due to the close supervision that the banking system is subject to in general, not only depositors but also shareholders are protected from managerial ill-advised decisions. This was apparent by having the synergy as the major motive for M&As in Europe with a thin evidence of hubris and agency effects.

The merger of two parties is not providing means for improving performance but the bank-specific performance during the pre-merger period is still causing positive  $IACF_{post}$ . Therefore, banks need to search for real common factors for potential performance improvement between one another before merger and only depend on their pre-merger superior performance over the industry. The loan quality has been the major concern for merging parties; therefore, cleaning up the current loan portfolio could be the first step on the way for maintaining the profitability, market exposure, and capital standing levels. Moreover, it seems also that there is not much to do on the revenue side to improve performance, but the merging parties should concentrate on the cost side to improve efficiency since banks with high profitability levels pre-mergers are unable to exploit any synergy gains to improve cash flow returns. The

latter conclusion implies that these banks have already exhausted their potentials for cash flow improvement from the profit side.

Mergers, which are able to improve  $IACF$  and maintain a high  $IACF_{post}$ , are those mergers between partners with high customer loans to deposits, and high cost efficiency levels pre-merger. Hence, the efficiency of the merging parties before merger is a major driving force for subsequent performance improvement.

## **7.4 Avenues for Further Research.**

The sample we considered is restricted to the publicly traded banks and therefore sometimes it might be a bit dangerous to draw conclusions that are applicable to the whole industry. The research covered 17 European countries where every country was represented with a small number of transactions, this is also does not enable us to distinguish which country has a more successful M&A history in banking and which does not.

The research on M&As in the European financial services industry is still minimal. We feel one major issue is the involvement of the managers with the change in the bank control. Managers are taking the decisions to merger with other parties; a very interesting issue would be if their ownership status affects their decision to acquire other banks. The literature from bank merger has not yet covered this area inasmuch as it deserves attention. The motives of managers to take M&As decisions could change with their various ownership scenarios.

In the USA interstate bank mergers are dominating the scene, this is contrary to the picture of the European banking industry where banks are still expanding within their home country more than across the borders, this is. The reasons for this being the challenge of adapting to a new culture, language and other country specific factors across various countries in Europe as opposed to one culture and language in the USA. Moreover, it has been noted that banks are able to diversify their risk geographically within their home country more than if they choose to enter new markets across the borders (Danthine et al, 1999). It would be therefore interesting to study the causes and consequences of mergers more deeply and seek inside information from the bank managers themselves about their policies and plans.

In order to perform such a research we believe conducting clinical studies based on small number of bank mergers in various individual European countries would help to shed more light on the transformation of the banking industry in Europe.

One more interesting issue would be to investigate what distinguishes bank mergers from non-bank mergers. Is the key difference the close supervision that banks are subject to? We believe there are other aspects that still can be explored, which has to do with the market's expectations. The profitability of banks, in terms of ROA and ROE, is far lower than profitability of other non-financial services firms. So it is interesting to know why bank shareholders are still willing to maintain ownership which does not reward them higher than if they hold non-bank shares or participation.

## APPENDICES.

### Appendix A.

This appendix gives the details of the statistical tests used in the Chapter 3.

1) To examine the statistical significance of the mean standardised CAR between any two dates, we use the procedure adopted by Dodd and Warner (1983) which is similar to that of Patell (1976) and Dodd (1980).

For each security  $j$ , the abnormal return (the prediction error) for every day in the testing period is standardised by the square root of its estimated forecast variance, to form a standardised abnormal return.

$$SAR_{jt} = \frac{AR_{jt}}{s_{jt}}$$

Where

$$s_{jt} = \left\{ s_j^2 \left( 1 + \frac{1}{L_j} + \frac{(R_{mt} - \bar{R}_m)^2}{\sum_{t=1}^{L_j} (R_{mt} - \bar{R}_m)^2} \right) \right\}^{1/2}$$

In this case,  $s_j^2$  is the estimated residual variance from the market model regression for security  $j$ ,  $\bar{R}_m$  is the average market return over  $L_j$  days used for the regression, and  $R_{mt}$  is the return on the market index at days  $t$  during the estimation period.

For each security  $j$ , the standardised prediction errors, i.e. abnormal returns for every day in the event window to be examined, are cumulated to form the standardised cumulative abnormal returns,  $W_j$ :

$$W_j = \frac{\sum_{t=d_{1j}}^{t=d_{2j}} SAR_{jt}}{\sqrt{d_{2j} - d_{1j} + 1}}$$

If the prediction errors, i.e. abnormal returns are normal and independent across  $t$ , then the standardised cumulative abnormal returns  $W_j$  is distributed Student- $t$  with  $(L_j - 2)$  degrees of freedom; since  $L_j$  is large<sup>73</sup>,  $W_j$  is assumed to be distributed unit normal.

To test the significance of the average standardised cumulative abnormal returns SCAR in a sample of  $N$  securities, we then compute

$$Z = \bar{W}_j \sqrt{N}$$

Where

$$\bar{W}_j = \frac{1}{N} \sum_{j=1}^N W_j$$

Assuming that the standardised cumulative abnormal returns are independent across securities, then if the expected value of the standardised abnormal return is equal to zero. The test statistic  $Z$  will be distributed unit normal for the assumed unit normal.

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<sup>73</sup> In our sample we used 190 days for the estimation period.

## Appendix B.

### Multicollinearity

#### The Nature

Multicollinearity is created if two or more of the explanatory variables in a cross-sectional regression are correlated.

In cases of perfect linear relationship or perfect multicollinearity among explanatory variables, we cannot obtain unique estimates of all parameters. In general, in most of the cross sectional regression applications two or more explanatory variables are not exactly linearly related. Consequently, multicollinearity could be too high but not perfect (Gujarati, 1992).

#### The Consequences

We might encounter one or some of the following situations in the cases of high multicollinearity:

- a) Large variances and standard error of OLS estimators.
- b) Wider confidence interval.
- c) Many insignificant  $t$  ratios.
- d) A high  $R^2$  value but few significant  $t$  ratios.
- e) The OLS parameters and their standard errors become very sensitive to small changes in the data.
- f) Wrong signs for the coefficients.

### The Detection.

Kmenta (1986) observes that:

- a) Multicollinearity is a question of degree and not of kind. The meaningful distinction is not between the presence and the absence of multicollinearity, but between its various degrees.
- b) Since multicollinearity refers to the condition of the explanatory variables that are assumed to be nonstochastic, it is a feature of sample and not of the population. Therefore, we do not test for multicollinearity but can, if we wish, measure its degree in any particular sample<sup>74</sup>.

However, there is no single measure for multicollinearity, but it can be detected by observing one of the following:

- A high  $R^2$  value but few significant  $t$  ratios.
- High pairwise correlation among the explanatory variables.
- Examination of partial correlations.
- Subsidiary, or auxiliary, regressions. One of the ways of finding out which variables are highly linearly related to each other is to regress each variable against the other in the remaining variables and observe the corresponding  $R^2$  of the regression.

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<sup>74</sup> Jan Kmenta, *Elements of Econometrics*, 2d ed., Macmillan, New York, 1986, P. 431.

But what is the cut off point? The problem with all these methods is that it is difficult to decide what level of correlation between two variables is acceptable or not.

However, one of the very popular techniques is based on the calculation of the Condition Index. The rule of thumb is that if the condition index is less than 31.62 (square root of 1000), multicollinearity is not a problem for the independent variables in the model (Belsley, Kuh and Welsch, 1980).

### **Heteroskedasticity**

#### **The Nature.**

An important assumption of the linear regression model written below is that the disturbances  $\varepsilon_i$  entering the population regression function are homoscedastic, i.e. they all have the same variance,  $\sigma_i^2$ , if this is not the case then we face the situation of heteroscedasticity, or unequal, or non-constant variance.

$$CAR_i = \delta_0 + \delta_1 X_{1i} + \delta_2 X_{2i} + \dots + \delta_M X_{Mi} + \varepsilon_i.$$

#### **The Consequences.**

Although the OLS (ordinary least square) estimators are still linear and unbiased, yet they no longer have minimum variance, which means they are no longer efficient.

Briefly, when heteroscedasticity is present, the usual hypothesis testing routine is unreliable, raising the possibility of drawing misleading conclusions.

Therefore, we follow the procedure of White (1980) to calculate consistent estimators of the OLS parameter covariance matrix regardless of the presence of heteroscedasticity.



## Appendix C:

### List of the M&As Deals in the European Financial Services Industry between 1987 and 1999.

<i>Target Name</i>	<i>Target Nation</i>	<i>Target Equity Value (€mil)</i>	<i>Acquirer Name</i>	<i>Acquirer Nation</i>	<i>Acquirer Equity Value (€mil)</i>
Hill Samuel Group PLC	United Kingdom	N.A	TSB Group PLC	United Kingdom	2706.92
Bergen Bank A/S	Norway	11.18	Kreditkassen	Norway	N.A
Murray Technology Investments	United Kingdom	13.83	Murray Electronics PLC	United Kingdom	16.43
Den Norske Creditbank	Norway	425.28	Bergen Bank A/S	Norway	20.84
Hambro Countrywide PLC	United Kingdom	153.92	Hambros PLC	United Kingdom	513.01
BIP	France	192.83	Dresdner Bank AG	Germany	5254.79
Skanska Banken	Sweden	100.18	Svenska Handelsbanken AB	Sweden	N.A
Tromsbanken	Norway	5.49	Fokus Bank A/S	Norway	N.A
Oslo Handelsbank	Norway	10.49	Svenska Handelsbanken AB	Sweden	N.A
Banque Nagelmackers 1747	Belgium	72.07	BNP(France)	France	595.36
Societe Financiere de Geneve	Switzerland	N.A	CERUS SA	France	1514.11
Vereins-und Westbank AG	Germany	725.22	Bayerische Vereinsbank AG	Germany	2535.75
Rogalandsbanken A/S	Norway	21.14	Fokus Bank A/S	Norway	N.A
Cie La Henin SA{CLH}	France	351.32	Cie Financiere de Suez SA	France	5461.18
Bourse 2000 SA	Belgium	N.A	Credit General(Kredietbank NV)	Belgium	89.75
TSB Bank Northern Ireland PLC	United Kingdom	30.97	Allied Irish Banks PLC	Ireland	1522.78
Banco Hispanoamericano SA	Spain	1918.27	Banco Central SA	Spain	3006.93
Scottish Mutual Assurance Soc	United Kingdom	N.A	Abbey National PLC	United Kingdom	5261.33
Parthena Investissement SA	France	88.21	Cie Financiere de Suez SA	France	7005.74
Basler Handelsbank(Swiss Bank)	Switzerland	N.A	Harwanne	Switzerland	75.91
Fideuram SpA(IMI/Italy)	Italy	186.90	Banca Manusardi	Italy	N.A
Midland Bank PLC	United Kingdom	2439.68	HSBC Holdings PLC	United Kingdom	5936.25
Credito Varesino SpA	Italy	234.43	Banca Popolare di Bergamo	Italy	584.44

Brown Shipley & Co Ltd	United Kingdom	28.04	Kredietbank SA Luxembourggeoise	Luxembourg	N.A
Cie du Credit Universel	France	74.30	BNP(France)	France	N.A
Bank in Kriegstetten	Switzerland	N.A	Solothurner Kantonalbank	Switzerland	17.89
Banca Popolare di Crema	Italy	87.87	Banca Popolare di Cremona	Italy	70.43
Banque Colbert	France	205.53	Calciphos	France	21.11
Corporacion Indl & Financiera	Spain	543.12	Banco Espanol de Credito	Spain	2761.72
Profrigo SA(Kredietbank NV)	Belgium	1.80	Kredietbank NV	Belgium	286.32
Seeland Bank	Switzerland	N.A	Schweizerischer Bankverein	Switzerland	3430.85
Credit Foncier Vaudois Service	Switzerland	190.99	Banque Cantonale Vaudois	Switzerland	491.96
Solothurner Handelsbank	Switzerland	3848.36	Union Bank of Switzerland	Switzerland	3792.04
Banesto	Spain	2150.72	Banco de Santander SA	Spain	4313.11
Regiobank beider Basel	Switzerland	N.A	Union Bank of Switzerland	Switzerland	2101.19
Solothurner Kantonalbank	Switzerland	8.75	Schweizerischer Bankverein	Switzerland	4103.21
Aktivbanken A/S(Topdanmark AS)	Denmark	235.22	Sydbank Sonderjylland A/S	Denmark	99.34
Vestenfieliske Bykreditforen	Norway	39.72	Christiania Bank	Norway	312.41
Tyndall Bank(Jupiter Tyndall)	United Kingdom	136.48	Cater Allen Holdings PLC	United Kingdom	172.03
EKN Bank	Switzerland	N.A	Union Bank of Switzerland	Switzerland	983.01
Gruppo Bancario Credito Romagn	Italy	1332.67	Credito Italiano Spa	Italy	1805.49
HMC Group	United Kingdom	N.A	Abbey National PLC	United Kingdom	6369.74
Aars Bank(Spar Nord Holding)	Denmark	10.55	Sparekassen Nordjylland	Denmark	N.A
Credito Lombardo	Italy	103.08	Banca Antoniana di Padova	Italy	N.A
KOP	Finland	705.41	Unitas Oy	Finland	876.25
Bonifiche Siele Finanziaria	Italy	289.52	Banca di Roma(SIPAB)	Italy	2759.56
Sicomax	France	N.A	Selectibanque(ISM Group)	France	203.68
Credit Lyonnais Bank Nederland	Netherlands	311.05	Generale de Banque SA	Belgium	2661.67
Vital Forsikring A/S	Norway	213.81	Den Norske Banken ASA	Norway	1280.70
Norgeskredit Holding AS	Norway	206.06	Christiania Bank	Norway	853.27
Batical Sicomi(Sade)	France	4.93	SNVB(CIC/Centrale Gan)	France	1195.39
Kleinwort Benson Group PLC	United Kingdom	1033.59	Dresdner Bank AG	Germany	8758.75
First National Finance Corp	United Kingdom	171.83	Abbey National PLC	United Kingdom	7514.54
Banca Popolare di	Italy	N.A	Banca Agricola Mantovana	Italy	472.56
Girobank A/S	Denmark	164.88	Sparekassen Bikuben A/S	Denmark	467.39
Lloyds Bank PLC	United Kingdom	10894.26	TSB Group PLC	United Kingdom	4644.68

EXTEBANK(Argentaria/Spain)	Spain	1926.48	Argentaria(Spain)	Spain	3303.70
ICQ(Banca di Credito)	Italy	18.41	Banca Popolare di Brescia	Italy	225.39
IDIA	France	117.09	CNCA	France	N.A
Banca Popolare di Luino e	Italy	201.82	Banca Popolare Commercio e	Italy	373.76
Banca Agricola Milanese SpA	Italy	150.85	Banca Popolare di Milano	Italy	700.52
Cofimur	France	26.47	Cofitem	France	71.24
Cie Financiere Ottomane	France	180.43	Cie Financiere de Paribas SA	France	5408.15
Bank Hydroenergie(Lyonnaise)	France	23.76	Credit Commercial de France	France	2504.57
Cie d'Investissement de Paris	France	559.61	BNP	France	5828.67
Banco de Fomento e Exterior SA	Portugal	1087.51	Banco Portugues de Investiment	Portugal	560.03
Lloyds Abbey Life PLC	United Kingdom	4636.74	Lloyds TSB Group PLC	United Kingdom	21029.91
Stadshypotek	Sweden	1819.93	Svenska Handelsbanken AB	Sweden	389.70
Tofinso	France	0.39	Centre Technique de Caisse	France	N.A
La France SA(Eurafrance)	France	523.25	Eurafrance(Lazard Freres)	France	1243.98
Credit du Nord	France	N.A	Societe Generale SA	France	7890.79
Creditanstalt-Bankverein AG	Austria	1506.68	Bank Austria AG	Austria	1797.02
Foreningsbanken	Sweden	3749.90	Sparbanken Sverige AB	Sweden	698.55
Locat Locazione Attrezzature	Italy	15.79	Credito Italiano SpA	Italy	2609.53
Ostgota Enskilda Banken	Sweden	153.51	Den Danske Bank AS	Denmark	3728.06
Banque Nationale de Paris	France	337.32	BNP	France	7820.43
Banco Portugues do Atlantico	Portugal	1344.26	Banco Comercial Portugues SA	Portugal	1782.10
Cater Allen Holdings PLC	United Kingdom	199.32	Abbey National PLC	United Kingdom	17071.69
EFT Group PLC	United Kingdom	101.78	Bank of Scotland PLC	United Kingdom	6332.59
Bayerische Hypotheken	Germany	7147.46	Bayerische Vereinsbank AG	Germany	8675.87
Credito Bergamasco	Italy	905.37	Banca Popolare di Verona	Italy	N.A
EA-Generali	Austria	1777.94	Creditanstalt-Bankverein AG	Austria	1871.94
Trygg-Hansa AB	Sweden	1389.80	Skandinaviska Enskilda Banken	Sweden	5071.55
Merita Oy	Finland	2695.76	Nordbanken(Venantius/Sweden)	Sweden	5395.97
Schweizerischer Bankverein	Switzerland	18476.34	Union Bank of Switzerland	Switzerland	4545.07
Banca della Provincia Napoli	Italy	83.51	Credito Emiliano(Credem Hldg)	Italy	869.94
Banco Totta e Acoresto EP	Portugal	1081.59	Banco Pinto & Sotto Mayor SA	Portugal	1353.76
Banesto	Spain	5523.23	Banco de Santander SA	Spain	14657.79
Credit General(Kredietbank NV)	Belgium	275.42	Kredietbank NV	Belgium	906.89

Banco Portugues do Atlantico	Portugal	1585.68	Banco Comercial Portugues SA	Portugal	4873.61
Istituto Mobiliare Italiano	Italy	8092.03	Istituto Bancario San Paolo di	Italy	8828.86
BIMP	France	99.54	BIL SA	Luxembourg	1869.52
AG Pannkkiiriilike Oy	Finland	9044.13	Den Danske Bank AS	Denmark	6000.00
National Mortgage Bank Greece	Greece	1217.09	National Bank of Greece	Greece	4525.52
Fokus Bank A/S	Norway	412.59	Den Danske Bank AS	Denmark	5067.77
Irish Life PLC	Ireland	2381.68	Irish Permanent PLC	Ireland	1040.74
Banco Central Hispanoamericano	Spain	10566.99	Banco de Santander SA	Spain	19520.43
JP Bank AB	Sweden	57.99	Matteus AB	Sweden	52.74
Aedes(Bonaparte SpA)	Italy	56.18	Cofide SpA	Italy	304.18
Paribas SA	France	14904.34	BNP	France	17042.14
Tryg-Baltica Forsikring	Denmark	1102.62	Unidanmark A/S	Denmark	3468.17
Ionian Bank	Greece	1413.37	Alpha Credit Bank	Greece	4592.34

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