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Re-evaluating the effect of mergers and acquisitions on the short-run performance of the European banking institutions

MPhil Thesis

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Abstract

The last two decades since the early 1990s were characterised by important factors that influenced the banking institutions in the EU – introduction of the euro, globalisation, deregulation and technological advance. The speed and depth of these changes were unprecedented. For many European banks, mergers and acquisitions (M&A's) became a universal response to these trends. Consequently, the number of operating banks has been continuously decreasing since the early 1990s due to integration processes.

However, the influence of the above-mentioned factors was studied insufficiently in the existing literature, and the obtained results were mixed and inconclusive. The thesis attempts to add to the knowledge on M&A's and to determine the impact of external shocks in relation to the banking acquisitions in the European Union.

The thesis re-evaluates and investigates the role of the introduction of the euro in the post-merger outcomes in the European banking sector. Following the methodology by Ekkayokkaya et al., (2009), the analysis is replicating the paper based on the sample of 1479 banking mergers in 1990-2004 and is further extending the research to the period of 1990-2015 to capture the abnormal returns for the banks involved into M&A processes and to establish the influence of the global financial crisis on the shareholders' wealth. As a useful improvement, the scope of the modern EU configuration was incorporated into second part of the analysis to reflect the economic, financial, social similarities between the EU states, as well as the integration efforts that were applied since the early 1990s. It was confirmed that the positive effect from the elimination of currency-related borders did not outweigh the negative effect of the intensified competition for the limited banking assets in the EU. Overall, introduction of the euro was one of the factors that played a negative role for the short-run outcomes of the merging institutions. Further, process of the short-run value creation in banking mergers among the European banks was studied for the period of 1990-2004 (replication of Asimakopoulos and Athanasoglou, 2013) and then extended to 1990-2015 in attempt to capture the role of the global financial crisis. By utilising market-based approach (event study methodology), it was found that the global financial crisis was among the factors that caused a distinctive negative effect on the changes in the shareholders' wealth of both acquirers and

targets. On average, bidders experienced losses of -1.15% during the active phase of the crisis (2007-2009). Both focused and diversifying M&A's were value-destroying; however, the only type of targets, that was able to bring positive gains to the bidders, was investment companies. It was also found that market was able to react positively on the deals announced during the crisis, thus showing optimistic attitude to the efforts to diversify into the other industries. Overall, banks were unable to benefit from low asset prices due to their own poor financial performance and economic uncertainty.

The second perspective analysed in the thesis was the attempt to utilise the combined approach by deploying market-based methodology (event study) and the methodology based on the accounting data, following Asimakopoulos and Athanasoglou (2013). The objective was to replicate the above-mentioned study and determine the connection between short-run market reaction on the M&A's and the accounting variables presented by financial ratios. Further, the research was extended to cover modern EU-28 configuration and time period between 1990 and 2015. As a result, 197 bank-to-bank acquisitions were analysed using market return model and subsequently by applying OLS- and GARCH-based regression analysis. The findings indicate that mergers do not create value for the bidders' shareholders, whereas targets' shareholders benefit from +2.5% growth in their wealth. It was also found, that accounting data provides weak explanation of the abnormal returns around the deal announcement. Only bank size was considered to be negatively related to the cumulative abnormal returns, implying that integration costs are likely to be the key barrier towards the post-acquisition synergies. The findings also indicate the most value-generating mergers in the sample are deals between smaller banks with higher profitability and lower credit risks.

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1. Introduction and research background

The banking sector is a significant industry in the modern global financial network. It fulfils the functions of an important intermediary between economic agents and runs the underlying mechanisms that facilitate the economic growth. Furthermore, the banking sector is the channel that enables effective financial resources allocation among the respective companies and individuals.

The last two decades were characterised by several important factors that influenced the banking institutions in the EU – introduction of the euro, globalisation, deregulation and technological advance. The speed and depth of these changes in the banking industry were unprecedented. The main components of the regulatory change in Europe have been the Second Banking Directive (1989) and the Capital Adequacy Directive (1993), both of which came into effect in 1993. These documents removed a number of geographical and product restrictions on banks, simultaneously aiming to move to the common regulatory standards. Rapid developments in technology have changed the way the banks deliver and structure their new products. Additionally, the potentials of the scale and scope economies established themselves as core objectives. Globalisation and the introduction of the euro have attempted to decrease the number of barriers between countries (Vander Vennet, 1999; Demirguc-Kunt and Huizinga, 2001).

For many European banks, mergers and acquisitions (M&A) became a universal strategic response to these trends. Consequently, the number of operating banks has been continuously decreasing since the early 1990s: from approximately 11,100 in 1999 to 6,477 in 2015 (ECB Press Release, 2014). The key reasons for the banks to pursue into mergers were scale and scope economies, cost reduction and increased market power (Llewellyn, 1999). The importance of the consolidation processes for the European economic system is evident from the proportion of banking M&A's in the total number of mergers – almost 30% of the deals' quantity and 40% in deals' value between 1990 and 2008 (Pozzolo and Focarelli, 2007).

Between 2002 and 2006 the European M&A activities peaked in both value and quantity, synchronically with the global sixth merger wave (Alexandridis, 2012). However, these rapid developments ended abruptly in mid-2007, when the global financial crisis broke out (Alexandridis, 2012; Beltratti and Paladino, 2013). It originated from the burst of the US residential real estate bubble and revealed serious weaknesses of the banking industry and the financial sector in general, causing

bankruptcies and collapses of several major financial institutions in the EU and the US, and provoking the strongest world economic crisis since the Great Depression.

The global financial crisis has also brought a devastating effect and was an influential factor that had a strong influence on the European banking sector. Some of the banks turned to the M&A market as a possible solution in the conditions of intensifying competition and more strict capital requirements (mergers of BNP Paribas – Fortis, Credit Agricole – Societe Generale, Lloyds TSB – HBOS)(Weitbrecht, 2010; Ng et al., 2010). This situation of high uncertainty and depressed capital markets was distinctly different from the booming periods of fifth (1991-2000) and sixth (2002-2007) merger waves with easy access to liquidity and high leverage levels for financial institutions (Alexandridis, 2012).

In the light of the preceding discussion, the lack of the new research on the M&A activities during and after the financial crisis is puzzling. The respective literature covering the theoretical and empirical aspects of M&A's (and banking M&A's in particular) has been very scarce since the end of the active phase of the global financial crisis (2009), mainly investigating particular narrow aspects of mergers, frequently covering only in the regional scope. The negative consequences of the crisis, however, did not dissuade banks from consolidation activities, although their number and scope have decreased significantly (Saqib et al., 2013). The European regulators responded to the post-crisis recession with the set of regulatory changes that were designed to eliminate the initial causes of the new crisis to emerge and to increase stability of the industry as a whole (CRD4 package – Capital Requirements Directive, 2013; MiFiD2 package - Markets in Financial Instruments Directive, 2014; the Bank Recovery and Resolution Directive, 2014)(KPMG, 2014). The landscape, where the European banks are continuing their consolidation has obviously changed and continues to alter.

In the context of the above-mentioned factors, the thesis aims to re-evaluate the performance outcomes of banking M&A's in the European Union for bidding and targets banks. The key structural changes that are considered as the most important impact factors are introduction of the euro (following Ekkayokkaya et al., 2009; Asimakopoulos and Athanasoglou, 2013) and the global financial crisis (following Ng et al., 2010; Beltratti and Paladino, 2013; Saqib et al., 2013). Their impact in the economy-wide context was studied in the academic literature (Hodson and Quaglia, 2009; Jackson, 2010; Weitbrecht, 2010). However, the phenomenon of M&A's

during the latest financial crisis, in particular, remains almost unexplored, especially considering the EU banking mergers in particular.

Generalising, this thesis attempts to improve the understanding of the impact caused by external shocks, that have either regulatory (introduction of the common currency) or market-related nature (financial/liquidity crisis), on the European banking M&A's. The research is primarily motivated by the lack of sufficient empirical evidence to highlight the outcomes of the mergers in different time periods throughout the consolidation in the European financial sector. The objective is to re-test the hypothesis of whether M&A's add to the value of participating banks.

The thesis replicates the studies of Ekkayokkaya et al. (2009) and Asimakopoulos and Athanasoglou (2013) in order to re-evaluate the changes in the shareholders' wealth for the bidders and targets for the period of 1990-2004. Further, by expanding the sample and using the data from the banking acquisitions in the last two and a half decades (1990-2015) for the modern EU-28 configuration, the thesis also aims to add to the literature that attempts to establish the direct link between deal-related (domestic/cross-border, focused/diversified, cash/stock financing etc.) and bank-related parameters (origination from EU/non-EU states; size, profitability, exposure to credit risk and other accounting ratios) and the outcomes of the mergers (measured as abnormal returns around the announcement date). The estimation of short-term performance effects would also enable to establish the degree of the market reaction to the above-mentioned factors in different time periods (with respect to adoption of the euro and the financial crisis). For the above-mentioned objectives, the equity prices data (both for stocks and market indices as benchmarks) and accounting data for the merging banks are collected from Thomson SDC and Datastream.

The thesis also sets an objective to extend the existing literature on the issues of M&A outcomes in the European Union in its modern configuration (e.g. 28 members). Given the long-lasting consolidation and gradual transformation of the financial sector in Western and Central Europe (EU-15), it is crucial to incorporate the banking acquisitions in the countries that joined the EU since 2004. Furthermore, the period after the crisis lacks attention in the literature (2010-2015), thus motivating to establish, whether the market for the banking M&A's has recovered after the financial crisis (in terms of deal value and number of the deals).

This thesis is relevant for researchers in the fields of banking and M&A as different aspects of the post-acquisition wealth creation in the EU banking sector and internal/external determinants are addressed in the study. Practitioners are given the opportunity to identify the deal characteristics that lead to value maximisation by acquirers and targets.

This thesis is organised as follows. Chapter 2 provides an extensive overview of the existing literature, highlights the key theories of M&A's and relationships between them and describes the key determinants of acquisitions. Chapter 2 also reviews the empirical studies which estimate the outcomes of M&A, using both market-based and accounting data-based approaches. Further, Chapter 3 covers the key methodologies used to assess the effects of mergers and outlines their strengths, weaknesses and appropriateness for the research objectives. Chapter 4 replicates the paper by Ekkayokkaya et al. (2009), re-evaluating the influence of the introduction of the euro on the short-run post-merger abnormal returns. Chapter 4 also provides an extended assessment of the European banking M&A's for the period of 1990-2015, capturing the role of the financial crisis for the outcome of the merging banking institutions. Chapter 5 replicates the study by Asimakopoulos and Athanasoglou (2013), re-testing their initial hypotheses concerning the value creation for target banks and zero value changes for the banking bidders in 1990-2004 in the European Union. Furthermore, Chapter 5 extends the initial paper by covering all modern 28 members of the European Union for the period of 1990-2004 and applying both event study and accounting data approaches to establish the most important determinants of the post-merger value creation. Finally, Chapter 6 provides the conclusion, limitations of the analysis and suggestions for future research.

2. Literature review

2.1. Introduction

In this chapter, an extensive review of the academic literature on the M&A's is provided. The substantial number of papers concentrates on the motives and determinants of M&A's, which are extremely important to the understanding of mergers. Furthermore, it is also crucial to distinguish between the motives and determinants. M&A motives can be explained as a complex rationale that influences the decision of managers/shareholders to involve into M&A activities and to reach the strategic goals for the business as a whole (synergy gains, economies of scale/scope, geographic/industry diversification, etc.). On the other hand, merger determinants can be defined as a manifold of deal-specific, firm-specific, industry-specific or country-specific factors that influence the outcome of the deal and can be estimated quantitatively, in contrast to the motives that can only be defined retrospectively and very rarely prior to the takeover announcement. The investigation of M&A determinants is an important part of the research studies focusing on the outcomes of mergers. The wide variety and scope of determinants allow the scholars to establish the role and effect of each factor for post-merger effects (Pasiouras et al., 2005).

The literature review chapter below first covers the motives of M&A's, then outlines the key determinants that influence the outcomes of the merger deals. Further, the review of the post-acquisition studies delineates the results of takeovers from two different perspectives: market-based and accounting-based.

2.2. Motives for M&As

Generally, three core groups of M&A motives were outlined in the literature and can be classified in the following way: synergy motives (aiming to reach synergy gains), agency motives (aiming to maximise the gains of managers at the expense of the shareholders) and hubris/behavioural motives (aiming to satisfy the psychological aspirations of managers' power or occurring due to valuation errors or hubris effects)(Berkovitch and Narayanan, 1993; Zhang, 1998).

The discussion below provides a clearer picture of the merger motives classification and interconnections between them for the reader and allows a better understanding of the possible benefits for the firms participating in the M&A's.

2.2.1. Synergy-related motives.

The synergy is widely defined as the difference between the market value of the combined entity and the sum of market values of firms that are involved in the merger activities. In other words, the company that was established after the merger of two institutions is usually expected to have greater value than the sum of the initial values of participating companies. It can be described by the following formula (Pasiouras et al., 2005):

$$V_{syn} = [V_{AB} - (V_A + V_B)] - (P + E) \quad (1)$$

where,

V_{syn} - synergy value

V_{AB} - combined post-merger value of the combined entity

V_A - the value of the firm A (acquirer)

V_B - the value of the firm B (target)

P - premium paid for the target company

E - expenses on the merger process

Berkovitch and Khanna (1991) developed the hypothesis that the perception of future is crucial to assess the synergy gains of a particular takeover quantitatively. The researchers deployed games theory framework to simulate the effects of the M&A activities and managed to prove the theoretical existence of the equilibrium synergy level in the market under normal conditions. The key drawback of this paper can be its one-dimensionality, as authors did not consider the behaviour of any other type of market players that can be involved in the takeovers and assumed that positive future synergy is the only possible motive for the market players, which can be seen as disproven further below.

Berkovitch and Narayanan (1993) have also found evidence in favour of their previous findings on the importance of synergy gains as an M&A motive. Three key motives of merger activities were studied and the number of M&A by each motive was assessed. Their initial hypothesis was that total post-acquisition gains are positive only if synergy is the initial motive. Further, Berkovitch and Narayanan (1993) have calculated the respective cumulative abnormal returns (CARs) and subsequently estimated the aggregate values of the involved companies. It was found that synergy could be named as primary motive to merge, accounting

for almost 75% of the studied M&A's. Nevertheless, the above-mentioned paper failed to estimate the scenario when particular acquisitions can be motivated by the several factors simultaneously. Furthermore, the authors did not account for the gains' predictability and accuracy. For instance, consider the following case: the synergy-motivated merger fails to generate positive gains, but results in negative synergy instead; the authors' approach exclude this merger type from the category of synergistically motivated M&A's, which is obviously the model shortcoming and an example of "survivor bias", when only positive synergy-motivated deals remain in the final analysis. This drawback is a source of the potential misclassification of the takeover motives and distorted conclusions.

Later, Lawrence (2001) defined two sources of synergy effects in M&A's: operating economies and financial economies. Operating synergies are primarily drawn from combining resources of financial companies in a more productive way. Financial synergy can be achieved in the following manner. Firstly, it can form tax advantages due to opportunities to acquire debt financing for the company of a larger size. Secondly, some researchers claimed that merging banks can achieve lower costs of internal funds (Myers and Majluf, 1984; Palepu, 1986). Thirdly, the coinsurance effect can possibly arise – the scenario when corporate debt is spread across larger firm size leads to the lower likelihood of bankruptcy for combined entity comparing with two separate companies (Higgins and Schall, 1975; Kim and McConnell, 1977). Furthermore, some scholars view synergy effects more broadly and consider replacement of inefficient management as synergy effect as well. As Gammelgaard (1999) mentions in his classic synergy approach in support of the previous statement, the objective of the merger is to transfer higher managerial abilities and a higher level of knowledge. It is important to mention that relevant M&A literature often considers "synergy gains" not only in its narrow sense (the increase in market value for the combined firm comparing tow the sum of values of two separate firms), but often understands "synergy gains" as any business-related benefits (and not only financial benefits) for the combined firm comparing with the pre-merger state of two separate companies.

These and further aspects of synergistic benefits associated with M&A's are reviewed below with particular attention to the banking industry which is a particular area of interest of the thesis:

a) Economies of scale

This aspect of synergy gains assumes that possible positive effects can arise from producing lower average costs by distributing fixed costs in the production of larger output. This is typical for horizontal mergers among financial institutions. Particularly, Berger (1998) points out that mergers among small banks are widely characterised by scale economies effects: closing redundant branches, consolidating back offices and optimising payment systems. The researchers emphasise the fact that gaining improvements in efficiency through mergers is one of the key objectives for modern M&A processes in the banking sector (Humphrey and Vale, 2004).

b) Economies of scope

Implementation of the scope economies is widely considered as the second most widespread reason for M&A's in the banking sector (Amel et al., 2004). Researchers distinguish cost-based and revenue-based scope economies (*ibid*), which share the common mechanism: to offer wider services' range by exploiting existing facilities at current fixed costs (Wang, 2003). In the banking sector, in particular, revenue-based scope economies are related to the ability of banks to transform fixed inputs into a larger number of provided products and services (Pasiouras et al., 2005). The classic example is the role of advanced research, which is frequently unaffordable for the small banks.

c) Increased market power

This motive is also well-highlighted in the early literature on the M&A's. Some authors mention, that particular types of acquisitions (especially horizontal) are widely influenced by the firms' intention to increase the market power (Stigler, 1964). As noted by Blair and Harrison (1993), companies can raise prices without an appropriate level of competition and try to benefit from oligopolistic market structure. Thus, it can be considered that acquisitions allow shareholders' to receive wealth gains at the expense of customers (due to higher prices). On the other hand, Manne (1965), and later Vickers (2004) claimed that the government could play an important role in the M&A market (and banking M&A market in particular) by blocking some of the deals according to the anti-trust laws. Nevertheless, not all

countries can benefit from effective government competition control, thus motivating banks to engage into the takeovers that guarantee the growth of market power.

Gaughan (1996) provides three sources of market power: product differentiation, barriers to entry and market share. As long as European national banking industries markets can be defined as national oligopolies, there is a high potential for the post-merger market gains among operating banks (Vander Vennet, 1996).

d) Risk diversification

This source of synergy is mainly based on the assumption that the merger of two banking institutions can reduce aggregate institutional risk and decrease the failure probability. The two most widespread risk diversification types are geographic diversification, which enables firms to operate in more countries than in pre-merger period, and product diversification, which enables the company to provide a wider range of services (Goetz, 2012).

Particularly in the case of the banking industry, geographic diversification is supposed to reduce the risk as returns on loans that were issued in different geographic locations might have low or zero correlation, whereas the product diversification might reduce risk because the correlation between various financial instruments have low or zero correlation as well (Froot and Stein, 1998; Pasiouras et al., 2005). The merger-related growth in size can potentially result in the ability to provide a wider range of services in a larger number of countries thereby reducing overall risk for the institution (Rose and Hudgins, 2013). However, other studies provide evidence to the opposite trend that describes a stake of mergers among European banks as "subsidiarisation" (Lloyds TSB group split off into Lloyds and TSB; divestitures by Royal Bank of Scotland; selling off UK direct banking business by ING; sale of Greek subsidiary Emporiki Bank and securities department by Credit Agricole in 2012)(PwC Report, 2013). The conditions of economic uncertainty can motivate the banks to reduce risk by selling off peripheral activities and concentrating on core businesses (*ibid*).

e) M&A's as an alternative to bankruptcy

Several researchers argue that mergers can also be motivated by the possible future bankruptcy among the target companies (Dewey, 1964; and Manne, 1965).

For instance, Dewey (1964) accentuates that applying for bankruptcy can be a costly alternative for some categories of the target firms (for their creditors, shareholders, employees, etc.) Further, the author points out that these companies are often uncompetitive and unable to survive on the market in the long-term perspective. Dewey (1964) suggests that M&A's can be a much more effective alternative to bankruptcy, minimising losses of the targets' shareholders.

f)Replacement of Inefficient Management

As a development of ideas expressed in Dewey (1964), Manne (1965) offers the "inefficient management hypothesis", which asserts that M&A's create opportunities for the companies to compete for the limited market resources. The author also points out that often mergers occur in the situation when more efficient managers win the competition "battle" over the limited resources and gain the right to control them at the expense of less effective managers. Developing his initial thoughts, Manne (1965) states that if some mergers take place to save failing firms, gaining control rights over the inefficient firms can be an even better option. In other words, these types of mergers prevent the inefficient firms from the situation when they were forced to apply for bankruptcy or find the acquirer under tight deadlines. In the empirical context, inefficient management hypothesis is tested under an assumption that corporate stock prices reflect the quality of the management (Manne, 1965).

Developing the ideas mentioned above, Boisi and Essig (1994) has outlined that mergers provide an important advantage for the involved firms – an appointment of the more efficient management results in higher efficiency in the future. This theoretical approach to the mergers is followed by Franks and Harris (1993), who assumed that only two groups of takeovers exist: "allocational" and "acquisitional". "Allocational" mergers provide the re-allocation of the resources in a more efficient configuration, whereas "acquisitional" mergers occur between companies with no efficiency differences. Jensen (1988) has supported the ideas of Franks and Harris (1993) by claiming that M&A's are the universal mechanism to motivate managers to work more effectively and to increase their chances of survival in the company.

Other authors indicate that target shareholders will be the agents that are interested the most in the profit maximisation, resulting in a search for a merger opportunity to sell their shares at a profitable price (Berger et al., 2000). A counter-

argument is that some shareholders expecting better future performance (and therefore greater value for themselves), will seek to extract a high price from the bidder in order to compensate for the future gains they can potentially forego, making acquisition unattractive to the bidder (this problem was first characterised as special case of the "free-rider problem" in paper by Grossman and Hart (1980), who applied the "free-rider problem" concept to the field of M&A research).

g) Growth opportunities and technology

The scholars that studied the role of technology development as a motive for M&A's and a sub-type of synergy gains are normally relying on the Q-theory of investment (see Hayashi, 1982). Jovanovic and Rousseau (2002) argue that positive synergy gains emerge when the resources are transferred from firms with less advanced technologies to the companies with more advanced technologies. The basic underlying assumption of the model is a condition that the "state of technology" includes all the production processes and methods. Relying on the "state of technology" concept, Jovanovic and Rousseau (2002) suggest that a special cut-off level Q exists, that forces all the firms below that level to be either liquidated or taken over by firms above the Q level, who are the acquirers in the M&A market. As a result, high-Q firms gain a possibility to apply their superior technologies to the assets of low-Q firms, reaching the equilibrium. Simultaneously, the value for the shareholders is created.

h) Tax advantages

Copeland and Weston (1988) emphasise the importance of tax aspects in the corporate activities and M&A's. The synergy theory can be combined with the idea, that substantial positive synergy gains can be created by acquiring firm if a merger results in possible tax optimisation. The authors outline two key aspects of potential tax gains. Firstly, previously accumulated losses of the acquirer (i.e. the losses connected to the acquisition) can be used towards the reduction of future tax liabilities. Secondly, the post-merger increase in firm size allows the company to be placed into higher tax band with further wider possibilities to increase the value that would be written-off as depreciation (Copeland and Weston, 1988).

i)Financial aspects (debt capacity, co-insurance effect)

Several researchers expressed an opinion that improvement of the financial position can be compelling merger motive per se. Developing the Q-theory outlined in the previous paragraphs, Myers and Majluf (1984) and Fluck and Lynch (1999) produced another interesting explanation on the M&A motives. Their theoretical models assume that the firms are able to transfer "internal financing capabilities" (and not technology, in contrast to Jovanovic and Rousseau, 2002) of a more advantageous firm (i.e. "financially unconstrained" company) to finance the expansion and strategic growth of a less advantageous firm (i.e. "financially constrained" firm). The authors claim that their model describes the situation when particular firms fail to raise capital or possess insufficient resources/funds. M&A's are considered as a tool for such firms to find the merger partner with sufficient funds and internal capacities. Particularly, Myers and Majluf (1984) speculate that their model is applicable in terms of high uncertainty in the financial markets, as firms are facing higher costs of raising capital, thus becoming more motivated to be involved in alternative growth strategies (M&A activities). Recent literature has gone even further and considered the process of seeking unused debt capacity as an independent merger motive (van Binsbergen et al., 2010). Thus, relying on the above-mentioned theory, well-managed companies with low debt level and wide debt capacities are first candidates to be taken over under the conditions of high uncertainty or a situation when a large number of firms is cut off from the mechanisms of capital-raising (*ibid*).

Second, Lewellen (1971) accentuates the "increased debt capacity hypothesis" as an autonomous motive for acquisitions. This hypothesis concentrates mainly on „financial synergies" that occur in the case of conglomerate acquisitions (see also DePamphilis, 2003). Lewellen (1971) considers conglomerate mergers as a mechanism to create additional synergy and value due to the increase in debt capacities and the "co-insurance effect". Further, the author hypothesises that a merger between two firms with imperfectly correlated or mismatched cash-flows reduce the volatility of the cash flows for the combined entity, which can be considered as positive, stabilising effect. In turn, less volatile cash flows motivate lenders to widen the lending possibilities, increasing the debt capacity of the borrower. As a result, Lewellen (1971) argues that the bankruptcy risks remain unchanged, while the objective of better opportunities of capital-raising is secured. In

other words, Lllewellen's theory (1971) considers conglomerate takeovers as the most effective method to gain access to the capital markets without increasing default risks.

j)Information asymmetry and market misvaluation

Another interesting stream of literature concentrates on the market misvaluations and information asymmetry as a powerful motive for the companies to involve into M&A activities. In one of the first studies on this subject, Scherer (1988) tried to analyse the informational discrepancies between the stock market and target firms. The investigation was based on the assumption that stock prices follow "random walk" pattern. Consequently, the undervaluation of a particular company can occur only randomly and cannot be treated as a systemic feature. To the same extent, bidder companies can sometimes engage themselves in the M&A processes simply due to the random market shocks.

Generally, the theories on informational discrepancies refer to the different perception of the target value by targets' and bidders' managers. Thus, this situation can be interpreted through game theory, as was shown in several papers, which tried to model takeovers from this perspective. For instance, Giammarino and Heinkel (1986) postulated that an acquisition can be considered as a type of game between an informed target (presented by shareholders with full knowledge on their firm value) and an uninformed bidder (presented by shareholders with limited knowledge on the value of the target). The tender offer or any other kind of takeover approach is simulated as a bidding game under conditions of rational expectations and asymmetric information. Normally, target shareholders are expected to accept the bid with the highest premium in the first rounds of the bidding game, as the premium is the only decisive criterion for the target managers to assess the received bid. However, the main drawback is that game theory framework uses too many initial assumptions to consider the findings realistic and to extrapolate the results to the real-world capital markets and corporate environment. Another concern is that authors did not consider the motives of the bidders and the targets separately while modelling their rational behaviour.

The latest literature on market misvaluation is in line with the ideas expressed above (Rhodes-Kropf and Viswanatham, 2004; Rhodes-Kropf, et al., 2005). As managers usually possess superior information on their own firms, irrational market

valuation leaves a potentially wide room for the M&A's. Similarly, when corporate managers consider that market overvalues the equity of the company, they are often forced to finance the subsequent acquisitions with the overvalued stock (Shleifer and Vishny, 2003, van Bekkum et al., 2011). Furthermore, Rhodes-Kropf and Viswanatham (2004) elaborated two core implications for the "misevaluation framework". Firstly, acquisitions are expected to be a prevalent type of strategic growth during the periods of market misvaluation. Secondly, the stock is a preferred payment method in the misvaluation-driven M&A's (instead of cash that does not depend on the market estimations).

However, only a few papers study anomalies of market timing with regard to the European Union (Baker and Wurgler, 2002; Huang and Ritter, 2005).

2.2.2. Agency theory

Apart from a large group of synergy motives, the literature on the merger motives distinguishes second large block of knowledge that can be delineated as "agency theory motives" or "agency-related motives". Agency motives as key non-value-maximising motives were first studied by Manne (1965) and further developed by Jensen and Meckling (1976), who formulated the classic agency theory, which describes the situations that emerge if management is insufficiently motivated in maximising company value. The ambiguity mainly arises when managers pursue their own objectives (an increase of bonuses, personal risk diversification, etc.). Particularly, the concept of "empire-building" is capturing these personal objectives that influence the strategic decisions of managers in the context of M&A's. The prevalent assumption in the related literature is that managers are primarily interested in pursuing personal benefits even if the value of the firm would decrease as a result (see Becht et al., 2003; Tirole, 2005). In contrast to the literature covering synergy aspects of the M&A's, agency theory suggests that the key driver of acquisitions is the personal interest of the corporate managers. The goals of management can often diverge or even contradict their direct duties on increasing shareholders' wealth (e.g. Jensen, 1986; Shleifer and Vishny, 1989; Masulis et al., 2007).

The connection of agency theory to the field of M&A's theory was first described in detail by Pastena and Ruland (1986). The authors claimed that mergers are arranged and finalised by managers who aim to maximise their own benefits instead of their shareholders' wealth. In their theory, mergers can be considered as a

mechanism to satisfy the personal interests of managers who try to increase generated profits in the post-merger period. Additionally, the management also aims to increase the size of the company due to non-economic psychological factors (the above-mentioned "empire-building" and pursuit of power).

Developing the above-mentioned ideas, Ravenscraft and Scherer (1987) expressed an opinion that managers can engage into the M&A's to attract media attention. This idea is based on the presupposition that more intense media coverage can contribute towards further growth in value of the company and reputation of management.

As was shown in the previous paragraphs, there is a strong probability that managers decide to undertake a direct way to increase the company size quickly, on the basis of their own motives and survival chances and not relying on the shareholders' interests. An alternative hypothesis states that managers are likely to undertake "hit first" strategy in order to be involved as a bidder and to survive rather than to act as a target and to be fired (Ravenscraft and Scherer, 1987). Nevertheless, there is no uniform and harmonised approach in the literature considering the aspects of the managers' decision-making processes that are not related to the value maximisation.

An interesting contribution to the agency theory that should be mentioned in the context of M&A's is the "free cash-flow theory" developed by Jensen, (1986; 1988), who claimed that the key reason behind the M&A activity is the presence of the agency costs associated with conflicts between managers and shareholders over the "control over the free cash flow". Following Jensen (1986; 1988), the free cash flow is the cash flow in excess of the funds required to finance all projects available for the firm. Therefore, the free cash flow must be distributed to shareholders in order to maximise share value, serving as a control mechanism. 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 was 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's, making excess cash flow available for managers. The main derivation of his theory can be expressed in the following way: companies with excess cash flow and limited investment opportunities are more likely to be involved in value-destroying acquisitions (see also Stulz, 1990). Overall, it is possible to conclude on

the M&A's-related agency theory literature that managers are pursuing own interests while participating in the acquisitions, disregarding their duties to maximise the shareholders'. Consequently, the theory holds the view that takeovers are much more likely to be value-destroying.

2.2.3. Hubris theory

The third major theory that covers motives of M&A activities is the "hubris" theory. The hubris hypothesis was first elaborated by Roll (1986), who asserts that managers are involved into M&A's due to their overconfidence and over-optimistic estimation of the target firm assets, as well as the assessment of the post-merger positive synergies. Furthermore, such approach results in higher premiums. As Roll (1986) mentions, the key scenario when his theory is applicable is the situation, when the fundamental reasons in favour of the merger exist (based on the synergy gains or agency theory), but they are insufficient to initiate the takeover. This is the moment when hubris theory comes into play. The subjective estimation of the managers is the important trigger that starts the acquisition process, making misconceptions and irrationality of management the major driving forces.

Roll (1986) provides further explanations that managers are more likely to pay higher premiums for the target stock in conditions of competition in the M&A market. In other words, it is possible to observe so-called "winner's curse", when bidder pays a higher price for the targets company not only because of the acquirer's overconfidence, but in the result of "bidding competition" with other potential buyers. Morck et al., (1990) also mention that the intense competition can be an independent reason for the M&A's. The genuine estimation errors can also be the source of overpaying for the particular target (DePamphilis, 2003).

Overall, the cases of pure hubris-driven mergers are quite rare, but they result in zero gains at best, and often in value destruction for the bidders' shareholders. The targets' shareholders, however, increase their wealth, as it is transferred from acquirers through the mechanism of the stock premiums (Berkovitch and Narayanan, 1993).

Some studies highlight a special type of the hubris-related motivations that push the managers of bidder firms to acquire other companies. In particular, "raider theory" concentrates on the mechanisms of mergers when acquirers have no strategic reasons to engage into M&A's. Generally, private equity funds are the key

representatives of the corporate world to illustrate the "raider theories", when the targets' wealth is transferred to the acquirers after the purchase of the controlling stake (Vos and Kelleher, 2001). Frequently, private funds are seeking ineffective, inappropriately structured or distressed firms in any industry. Vos and Kelleher (2001) also admit that leveraged buyouts (LBOs) are the most widespread merger method in these cases.

2.2.4. The relationship between M&A theories.

The major motives of M&A's are outlined above. However, it does not mean that they are completely unrelated to each other. Moreover, in many cases several motives might explain the M&A activity in the better way if analysed together. For instance, maximising shareholders' value can be attained in many ways: market power, increasing efficiency or through achieving synergy gains. In fact, market power can be considered as another form of increasing profit efficiency in the sense that the same quantity of input is generating a higher quantity of output. Hence, it becomes very difficult to distinguish between the true reasons behind the merger decision. Moreover, synergy gains can also result in the efficiency improvements. Scale efficiency and scope efficiency are the two sources for efficiency growth: when the combined entity cuts the costs by implementing scale economies or when they distribute total fixed costs on a wider range of products, then synergistic gains are realised and can be detected by the researcher. Therefore, it might be difficult to disentangle one motive from another when a takeover took place. On the other hand, when no net shareholders gain is realised, agency theory and hubris theory could be the possible explanations.

Summarising, Berkovitch and Narayanan (1993) systematised different theories and motives of M&A's in three key groups and concluded that post-merger gains are positive for synergy motive, zero for hubris theory motive, and negative for agency theory motive. The authors have also suggested the following framework to define the dominating motive in any merger event. Synergy is the theory that explains the takeover decision when the relations between acquirer gains and target gains, and target gains and total gains are both positive. Further, when there is no relation between target and total gain, and when the relation between acquirer gain and target gain is negative, then hubris theory is the best explanation. Finally, agency theory is the best fitting explanation when the relation between target and total gains,

and the relation between acquirer and target gains are both negative (Berkovitch and Narayanan, 1993).

Importantly, very few papers concentrated on the banking M&A's. To the best of my knowledge, there is no such study similar to Berkovitch and Narayanan (1993) that effectively and thoroughly summarises the motives typical for the mergers in the banking sector or establishes the similarity between them, as well as analyses the merger outcomes in conjunction with preceding motives.

2.3. Determinants of banking M&A's

The reviewed literature in sections 2.1 and 2.2 concentrated on the key motives that are present in the pre-merger decision-making process of the companies involved in the M&A's. Another part of researchers focuses on the outcomes of the acquisitions, analysing the phenomenon of M&A ex-post and aiming to define the factors that influence the value creation (or destruction) and the factors that define the overall success (or failure) of the merger. As Sudarsanam (2003) points out, value growth is the fundamental objective of any acquisition. Consequently, the growth in shareholders' wealth is considered as the most important characteristic that can help to assess the outcome of the merger.

The review of the studies in previous sections indicates that mergers can act as both value-generating and value-destructing mechanism of strategic growth. The factors that influence the future outcomes of the merger deal are widely known as "determinants" in the M&A literature (Martynova and Renneboog, 2008). Researchers distinguish three groups of determinants of merger activities: "firm-specific", which comprise bidder- and target-specific characteristics; "deal-specific", that consist of deal parameters that can exert positive or negative influence on the merger outcome; and "macro-determinants", that consist of industry- and country-specific factors that are exogenous in the strategic decision-making process in the field of M&A's. According to the objectives of our research, the analysis of the literature considering the M&A determinants is provided. Where possible, particular focus is put on the role of merger determinants for the deals in the banking sector.

2.3.1. Firm-specific factors

a) Operating performance of bidder and target. It is usually implied that the firms with worse operating performance are more likely to be acquired Wheelock and Wilson (2000). Furthermore, underperforming companies are more

attractive for the in-market competitors, as the latter possess the necessary knowledge to improve the performance of the target firm. Wheelock and Wilson (2004) have studied the dependence of operating performance and the probability to be involved in M&A as an acquirer. The authors investigated 890 US bank mergers in 1987-1999 and discovered that more efficient banks are more likely to become bidders and acquire less efficient institutions. On the other hand, Akhigbe et al. (2004) concentrated on the target side of the M&A's, examining the operating performance of the US banks in the context of the probability to be acquired. The authors have demonstrated that the probability of acquisition is higher for larger and less profitable banks. Further, Hannan and Pilloff (2006) confirmed that low profitability is a key factor that increases the chance of being taken over. Generally, in line with the "competition theory" mentioned previously in section 2.2 by Manne (1965), it is completely correct to regard M&A's as a mechanism when unprofitable and poorly managed firms are eliminated by profitable and well-managed firms.

A number of studies focused on the European market of banking M&A's. In line with the US studies, it was also found that banks with poor performance are more likely to become a takeover target. For instance, Beitel et al. (2004) and Pasiouras et al. (2007) have demonstrated in their papers that merger targets are normally less efficient (cost-efficient and profit-efficient) that bidders. Focarelli et al. (2002) studied the Italian financial sector and have shown that target banks have relatively poor credit management; on average, the takeover resulted in the improvement in asset structure and credit allocation.

However, another stream of studies produces conflicting evidence. For instance, Koetter et al. (2007) studied the sub-category of distressed banks' mergers and found no connection between the financial performance and the probability to become takeover target (the authors implemented regulatory assessment ratings and the independent credit ratings to address the research problem). Contrary results can be found in Hosono et al. (2006), who investigated Japanese market and concluded that inefficient banks are more likely to be acquired, similarly to the results for the US banking sector.

b) Capitalization. This merger determinant is based on the two groups of arguments. Firstly, the negative relationship can be presented by hypothesis, that less capitalised targets reflect low management abilities (Hernando et al., 2009). Secondly, low capitalization targets can be used to obtain higher post-merger

performance gains (*ibid*). In contrast, a positive relationship is presented by arguments that highly capitalised banks are less diversified and therefore will be targeted by less diversified acquirers. The most influential studies by Hannan and Pilloff (2006) and Lanine and Vander Vennet (2007) have pointed out that banks with higher capitalization are less likely to be acquired. On the other hand, Akhigbe et al. (2004) have found evidence to the contrary. Interestingly, US banks were found to be better capitalised than their EU counterparts. Overall, the relationship between capitalisation and the potential to take part in the M&A processes is unclear in the existing literature.

c) Prospects for future growth. The hypothesis of a direct relationship between growth rates and the acquisition likelihood is confirmed by studies of Hannan and Rhoades (1987) and Cheng et al. (1989). However, in more recent studies Moore (1996) and Pasiouras et al. (2007) have shown that targets with lower growth rates are more likely to merge with acquirers. Pasiouras et al. (2007) have provided following explanation, which is competition-related: banks with lower growth rates face intensifying competition and prefer to maximise the shareholders' value by selling the bank to the buyer prior to the moment when efficiency problems would drive the stock price down.

d) Size. Recent studies support the hypothesis that smaller banks are more likely to be acquired due to lower integration costs (Lanine and Vander Vennet, 2007; Pasiouras et al., 2007). On the contrary, Hannan and Pilloff (2006) testify mixed evidence: in large sample investigation large banks are more likely to be acquired, whereas in case if the sample is narrowed to larger banks (excluding deals that are lower than $1 billion) it becomes more probable for the smaller banks to be acquired.

e) Management incentives. The mechanism of this determinant is based on two hypotheses:

1) the management is likely to oppose the merger if they do not have sufficient control on the board and are not exposed to potential gains similarly to shareholders;

2) the management is likely to oppose the merger due to the high efficiency and incentives to maximise value.

The findings by Hadlock et al. (1999) accentuate that the firms with higher management ownership levels have a lower probability to become a takeover target (due to higher costs to overcome the management's reluctance to leave).

f) Industry concentration. In theory, intense competition and thorough regulatory supervision should reduce the likelihood to merge. However, if the banking sector is considered, the existing literature, fails to find supportive evidence for the US banking sector (Hannan and Pilloff, 2006). Some studies suggest that the level of concentration in the European financial sector higher than in the US, resulting in higher potential exposure to actions by regulatory authorities (Lanine and Vander Vennet, 2007). On the contrary, Pasiouras et al. (2007) obtained significant and negative coefficient for the concentration ratio in their model that was deployed to study the impact of concentration on the M&A outcomes. Their results testify that higher market concentration leaves almost no options for the existing banks to expand further, reducing the probability to be acquired for each of them.

g) Bidding experience. There are several views on previous bidding experience as a factor influencing M&A outcomes. These are the "learning by doing" hypothesis, the monopolisation hypothesis, the indigestion hypothesis. As can be seen from the names of the hypotheses, these suggestions are connected and can be developed from the motives that motivate companies to be involved in M&A's.

Following the "learning by doing" hypothesis, the number and subsequent success of the performed mergers should have a positive effect on future deals. The fundamental idea behind this hypothesis is that an "acquisition learning curve" exists and that the "experienced acquirer" will be more successful (Collins et al., 2009). Consequently, the returns to acquisitions are predicted to rise over time. The supporters of the "learning by doing" hypothesis argue that the type of acquisition is important and so there are several learning curves. There could be one for related acquisitions and another for unrelated, one for domestic and another for cross-border, one for public acquisitions and another for non-public acquisitions. As a result, the performance effect of any acquisition depends on how many of that type of acquisition has been carried out previously.

Multiple acquisitions may also result in a sequential improvement in acquirer performance if they bestow upon acquirer companies a sequential increase in market power. For example, Kamien and Zang (1993) have shown that a sequence of domestic mergers will subsequently lead to the increase of monopolisation level in

the industry. However, the key shortcoming of this paper is following: it can be argued that with the present-day global enforcement of competition policy, this type of monopolisation is a rarely observed phenomenon. Other hypotheses postulate that serial acquisitions do not enhance the bidding firm's shareholder wealth.

The indigestion hypothesis states that the acquirer is unlikely to integrate several targets successfully in short periods of time because of the set of operational, financial and structural difficulties. Consequently, there is a high probability that each subsequent acquisition would result in poorer performance than the previous one (Kengelbach et al., 2012).

Empirically, plenty of studies highlighted the bidding experience as a determinant of the post-merger success, in short-term and long-term aspects. Some early studies, such as Schipper and Thompson (1983), investigated the post-merger returns for the frequent bidders and found positive abnormal returns of almost 13% around the announcement date. However, they found the weak stock reaction to subsequent merger announcements. They explained their findings by the fact that most of the benefits of a merger event are capitalised during the time around the announcement.

At the same time, some early studies studied the performance of frequent bidders depending on order of the acquisition. For instance, Asquith et al., (1983) found that the majority of the acquirers in their sample performed multiple bids, 45% of them being involved in four or more subsequent bids during the sample period (1963 -1979). They investigated the abnormal returns for the 156 bidders that initiated mergers after eight years without a bid. They also found that bidder returns remained positive at roughly 2.5% through the fourth bid. Subsequently, Loderer and Martin (1990) studied the impact of takeovers on the short-term returns of 1,538 acquirers of 5,172 targets from 1966 to 1984. They have discovered that the first mergers resulted in significantly larger effects on announcement date than subsequent acquisitions. They also demonstrated that first acquisitions tended to cause higher abnormal returns when they were standalone comparing to the “serial bidding” cases. They explained the findings by suggesting that mergers are profitable in general, but the positive anticipations of the subsequent mergers are already included in the stock prices, thus resulting in the weaker market reaction in next takeover announcements, i.e. creating so-called “experience estimation bias”.

Haleblian and Finkelstein (1999) have studied the announcement CARs for 449 American mergers taking place in 1980-1992 and further compared the findings with the results for the time period of 1948-1979. They reported a significant negative relationship between merger experience and merger outcome. Hayward (2002) investigated 350 takeovers by 100 US companies between 1990 and 1995. Further, the author attempted to find a connection between the stock performance close to the event date and the performance of the previous M&A's performed by the same companies. It was revealed that the number of past mergers has a negative effect on the CARs around the announcement date. In a nutshell, the two above-mentioned authors simply argue over the interpretation of the obtained results: the key point is whether the companies learn from acquisitions and improve their results over time, or whether serial bidding has no impact on any of the firm characteristics except market power.

The milestone research by Fuller et al. (2002) has investigated the short-term abnormal returns to 539 bidders that had fulfilled minimum five acquisitions over a three-year period in 1999-2000. They did not look at any takeover activity prior to this period and found that initial bids resulted in significant positive returns, while returns to the subsequent bids were insignificant and negative. The authors provided an explanation to their findings that acquirers were more efficient in the first acquisitions, and the negotiation process became less effective in the subsequent takeovers, thus creating lower synergy gains in the post-acquisition period. Another interesting result was the observation that abnormal returns are lower for shorter event windows around the announcement date.

Several studies have covered the long-run aspect as well, as long-run perspective is present in the research of serial bidding over a particular period of time. For instance, Stegemoller (2001) studied the long-run performance of 542 US firms making five or more acquisitions from 1990 to 1999. The evidence shows that frequent acquirers outperformed comparable firms in both accounting and stock return measures. Stegemoller (2001) also presented results testifying that larger merger deals are more successful than smaller ones. Baker and Limmack (2001) found similar evidence for the UK.

Furthermore, Rosen (2004) examined the short-term and long-term effects for the finalised acquisitions by a sample of companies over a period of three years. The author has revealed that the short-term abnormal returns were higher for the deals

that were initiated first in the row of takeovers. Rosen (2004) has also found the direct positive relationship between the announcement effect for the bidders and the previous merger performance at the announcement.

In summary, better performance of the serial bidders exists. There are also findings that testify gradual decline in the announcement returns over time in the case of frequent bidding. Unfortunately, the market of the European M&A's has received almost no attention in the existing literature. The same lack of relevant papers can be attributed to the banking sector in particular.

2.3.2. Deal-specific factors

Scholars also investigated the M&A characteristics of the merger deals in an attempt to define whether merger outcomes are sensitive to the deal parameters. Generally, the most important are following: listing status, relative bidder size, method of payment, industrial relatedness.

1) Listed status. Existing literature demonstrates different reaction of the market players to the takeover of private and public targets. Consequently, the scholars distinguish a plethora of reasons to anticipate these differences in the abnormal returns for acquirer companies involved in mergers with private and public targets. For instance, Draper and Paudyal (2006) noted several theories that can explain the discrepancies in reaction: managerial hypothesis, liquidity hypothesis and the bargaining power hypothesis.

According to the liquidity hypothesis, it is usually assumed that the market of private mergers is frequently illiquid. Whereas public takeovers occur in the environment of transparency and unhindered circulation of the information, the market for private M&A's is operating in the opposite conditions. In other words, the information on the privately held targets is quite scarce and difficult to be verified. This creates additional complications for the processes of asset estimation by public companies. The bidders can often benefit from market illiquidity and expect lower premiums in the process of merger negotiations, thus increasing their bargaining power and leading to underpayment. Finally, the abnormal returns should be higher because of the lower price paid and higher anticipated post-merger synergy gains (Fuller et al. 2002; Conn et al., 2005). Because of the above-mentioned arguments, private firms are less attractive for the external bidders, thus enabling acquirers to benefit from larger discounts and lower premiums. Most scholars reach a consensus

that private firms usually motivate bidders by reducing the requested price for their stock in order to uphold the status as an attractive investment opportunity, resulting in generally higher post-acquisition gains for the buyers (Antoniou et al., 2007).

On the other hand, the managerial hypothesis asserts that two types of managers exist. The first type usually aims to maximise personal gains (sometimes even at the expense of the company) and to increase the size and the prestige of the firm. The second type includes managers who are not prone to agency problems and perform their primary duties thoroughly, increasing the shareholders' wealth. The attention of the first category is usually drawn by public firms, which provide a direct and simple way to increase company size and prestige. Simultaneously, this scenario involves higher premiums for the targets stock and subsequent lower abnormal returns and possible value destruction of the bidder. Alternatively, the takeover of the private targets is initially motivated by the future synergy gains and other merger-related wealth-maximising benefits that are in line with the beliefs of type two managers. The latter are less likely to pay higher premiums because of the risk to destroy the shareholders' wealth in the moment of the bid announcement. An additional argument is that private firms are usually smaller and easier to integrate into the bidder structures with lower costs and efforts. Thus Draper and Paudyal (2006) anticipate more optimistic market perception of the merger deals that involve privately held companies in comparison to public ones.

Finally, the bargaining power hypothesis asserts that private firms are not exposed to the agency problems due to their peculiar ownership structure involving only a small group of people or a family as both shareholders and managers. Thus, the absence of confrontation between shareholders and managers creates an opportunity for the private companies' owners to control the merger negotiation process more thoroughly and choose the better timing. These conditions increase the bargaining power of the targets' representatives and open a space for higher wealth gains for the targets, simultaneously decreasing prospective wealth gains for the bidders, comparing with the public takeovers. As can be seen from the previous discussion, the theoretical expectations of the private acquisitions are quite diverse. Thus, the scholars have studied the problem of acquiring private companies empirically.

For instance, Fuller et al. (2002) have found that the gains for the bidders involved in private takeovers were significant and positive (around +2.08%) in the 5-

days event windows around the announcement date. Further, Conn et al., (2005) has demonstrated higher abnormal returns for the bidders involved in domestic acquisitions of the private company comparing with public takeovers. The authors concluded that public deals destroy shareholders' wealth of the acquirers by almost -0.99%, whereas the takeovers of the private targets generated significant gains of almost +1.05%. These findings were completely in line with other studies that concentrated on the UK and European market (Sudarsanam and Mahate, 2003).

More recently, Antoniou et al. (2007) investigated the wealth effects of the bidders' shareholders that were involved in private acquisitions in 1987-2004. The authors have found significant positive gains of almost +1.59% for the bidders acquiring private targets. These results are largely consistent with the findings by Ang and Kohers (2001) and Draper and Paudyal (2006) who have reported significant gains from buying private firms.

2) The method of payment. Existing literature provides decisive arguments in favour of the theory that cash-financed mergers outperform stock-financed deals in the short term (Travlos, 1987; Draper and Paudyal, 1999; and Dong et al., 2006) and in the long term (Loughran and Vijh, 1997; Linn and Switzer, 2001; Cosh and Guest, 2001). Researchers consider the choice of the payment type as an important problem to investigate, as it is one of the key deal-related determinants that can influence the merger outcomes for both bidder and target. In general, the existing literature on the takeover payment types finds strong evidence in favour of larger value gains in cash-financed deals in comparison to stock-financed mergers. Interestingly, higher wealth gains are generated for both acquirers and targets (Huang and Walking, 1987; Travlos, 1987; Franks and Harris, 1989; Draper and Paudyal, 1999; Sudarsanam and Mahate, 2003; Goergen and Renneboog, 2004; Dong et al., 2006; Tuch and O'Sullivan, 2007).

Myers and Majluf (1984) were first to suggest that payment method serves as a signalling mechanism to the market. This hypothesis is based on the assumption that the asymmetry in information available to the merger counterparts is almost always present in the case of M&A's. In other words, target managers possess the unique information on their company, while external investors rely on the public information only. Developing the ideas of Myers and Majluf (1984), Hansen (1987) offers the hypothesis that bidders engage into equity-financed merger deals if they lack information on the true target value or in private acquisitions. Furthermore, the

factor of taxes can also play a substantial role in the M&A processes: capital gains are taxed immediately, whereas it can be postponed in the stock payment scenario. Effectively, the acquirer can choose to deploy equity as a financing method if the option of postponing taxation liabilities is important to the shareholders of bidder or target.

Travlos (1987) considered the abnormal returns to the acquirers and demonstrated significant and positive abnormal returns for the cash-financed deals, while bidders suffered wealth destruction if their takeovers were financed by stock. These results are in line with the findings by Martin (1996) who has presented evidence for a significant difference between mergers with cash as a key payment method in comparison to stock-financed acquisitions. As a result, the managers of the acquirers choose to implement cash as a payment type if they consider their company undervalued and believe in the further growth of stock prices. Alternatively, bidder's management prefers stock as a financing method if they consider their company overvalued and aim to utilise their advantage in the acquisition. Thus, the information on the payment with acquirer's equity can signal the market on the situation when the bidder is overpriced (Goergen and Renneboog, 2004). Following the similar logic, announcement of the cash deal financing signals to the market that investors can anticipate the growth in acquirer's value in the nearest future (in the post-takeover period) which will definitely lead to the gains in the shareholders' wealth (Tuch and O'Sullivan, 2007).

In line with the above-mentioned theoretical implications, the post-merger outcomes of cash- and stock-financed mergers are mixed. For instance, Goergen and Renneboog (2004) investigated a sample of the European M&A deals and revealed that the bidders' shareholders enjoyed wealth gains of almost +1% in the equity-financed acquisitions, while cash-financed takeovers resulted in only +0.4% value growth. These results allow concluding that the signalling hypothesis is not confirmed, as market ignored the payment type as information on possible acquirer overvaluation. In a similar manner, Andre et al. (2004) analysed Canadian M&A's and came to the conclusion that cash-financed deals are underperforming if compared to the merger with mixed payment type. The authors considered that the lack of information transparency and market inefficiencies could be the reason of the findings' contradictory nature. Several other studies that concentrated on the difference between cash-financed and stock-financed merger in the long term have

shown better results for the cash payments (Loughran and Vijh, 1997; Linn and Switzer, 2001; Cosh and Guest, 2001).

3) The relative size of the bidder and target. A substantial number of studies have considered comparable characteristics of bidders and targets as an important factor that influences the post-merger outcomes apart from payment type and listed status (Tuch and O'Sullivan, 2007). The authors hypothesise that bidding for larger targets can possibly result in better post-merger performance comparing to the takeovers of smaller targets. Large bidders can benefit from decreased competition and attempt to obtain gains from their advantageous status (Roll, 1986). Furthermore, the takeover of the larger target can result in an even more powerful economic impact on the post-merger performance of the combined firm, if market power, debt capacity and other factors can be taken into account in this context (Bruner, 2002). However, Moeller et al. (2004) express an opinion that integrating larger targets is exposed to higher risks and costs to harmonise two structures into the merged company, making the role of the relative size of bidder and target in the post-merger value creation is unclear.

In the empirical perspective, the majority of the studies concentrating on the effect of the relative size factor on the post-acquisition performance have found that bidders experience stronger positive impact from acquiring larger targets (is the market reaction to the merger announcement is assessed)(Asquith et al., 1983; Franks and Harris, 1989; Jarrell and Poulsen, 1989; Tuch and O'Sullivan, 2007).

Generally, the existing studies show mixed results about the impact of M&A announcement on the returns to bidders with respect to the relative size of the involved companies. Some of the papers find significant and positive abnormal returns for acquirers (Fuller et al., 2002; Conn et al., 2005; Ben-Amar and Andre, 2006), while others reveal zero or negative CARs (Sudarsanam et al., 1996; Sudarsanam, 2003; 2006). The papers that studied the European market have shown insignificant and close-to-zero abnormal returns (Campa and Hernando, 2004; Gregory and McCorriston, 2005).

The discrepancies in the obtained results among the above-mentioned studies could be present due to the fact that scholars studied M&A's in the various industries over different periods of time; additionally, even different benchmark models were applied. One of the obvious shortcomings among several papers is that authors imposed additional constraints on their sample, limiting it to only large-scale

acquisitions (see Aw and Chatterjee, 2004; Goergen and Renneboog, 2004), which may probably lead to the findings that cannot be generalised across time and extrapolated to other industries.

Furthermore, as is obvious from the literature, the majority of the existing studies were performed using merger deals that occurred in the 1980s and early 1990s, such as Conn et al. (2005) who studied a sample of UK bidders in 1984-1998, Gregory and McCorriston (2005) who investigated a sample of merger deals in 1984-1994 of UK bidders, and Moeller and Schlingemann (2005) who investigated US merger market between 1985 and 1995. Thus, the findings of the above-mentioned studies are somehow obsolete and are necessary to be re-tested.

4) Industry relatedness. The intuitive argument implies that synergetic gains and, hence, higher performance can be obtained in the case of takeovers within industries, as the integration costs are lower. Singh and Montgomery (1987) speculated that acquisitions between companies of the same industry provide powerful opportunities to actualize economies of scope and scale, whereas unrelated acquisitions are expected to result in administrative and financial synergies. Short-term investigations are also in line with the argument above. Hubbard and Palia (1999) have found significant CARs of approximately +1.6% from focused and insignificant abnormal returns from diversifying mergers around the announcement date. Walker (2000) provided evidence supporting the initial hypothesis: industry-related deals result in significant value growth.

The long-run research appears to be conclusive as well. Gregory (1997) has shown significant losses for conglomerate deals (-11,33%) comparing for non-conglomerate bids (-3,48%) in 24-months horizon. Maquieira et al. (1998) report +6.2% CARs for non-conglomerate mergers.

5) Cross-border status. Current literature on M&A's clearly distinguishes cross-border M&A's from domestic mergers. As long as cross-border takeovers feature a set of specific characteristics, the scholars outline systematic differences regarding underlying motives and future outcomes of domestic and cross-border M&A's (Harris and Ravenscraft, 1991; Seth et al., 2000). It is also important to take into account that plenty of external factors play a decisive role in the post-merger integration, among which are cultural, economic, regulatory and institutional characteristics (House et al., 2002; Shimizu et al., 2004). As Sudarsanam (1995) outlines, cross-border acquisitions should be even considered as a separate

phenomenon, and not only as an extended category of domestic M&A's, primarily due to the vast number of differences between countries and their economies. Consequently, all secondary aspects may have impact on the post-merger performance: cultural, legal characteristics, accounting rules should be thoroughly analysed in order to establish a true picture of the M&A activities (Sudarsanam, 1995). Generalising, the same set of motives highlighted in section 2.2 (synergy, hubris and agency theories) is applicable to both cross-border and domestic M&A's.

Empirically, the literature which investigates the cross-border M&A's explicitly is quite scarce. The explanation of this phenomenon can rely on the notion that international mergers massively emerged only during the penultimate, fifth merger wave (1992-2000). Nevertheless, several earlier papers effectively forecasted and compared the subsamples of domestic and international takeovers, assessing post-merger outcomes and premiums paid in the transactions (see Dewenter, 1995). The author has also shown that stock premiums are significantly higher in the cross-border acquisitions (ibid). Several relatively early empirical studies examined cumulative abnormal returns generated around the announcement of the cross-border acquisitions. The majority of scholars focused on the short-run analysis. The findings presented in Doukas and Travlos (1988), Morck and Yeung (1991), Markides and Ittner (1994) and Cakici et al. (1996) provide a view that cross-border mergers result in higher gains for the counterparts than domestic deals. Further, Doukas (1995) concentrated on the sample of 463 cross-border deals in 1975-1989 with bidder registered in the US. He has reported that on average shareholders' wealth increased by significant +0.4%.

Eun et al. (1996) attempted to test the synergy hypothesis by studying a sample of cross-border acquisitions that involve US targets between 1979 and 1990. The reported results demonstrate that international M&A's generate larger wealth gains for the acquirers' shareholders than domestic deals. In particular, the findings show that abnormal returns for the non-US acquirers substantially vary among the countries where bidders are headquartered: while gains for the bidders from Canada are positive, but close to zero and insignificant, Japanese bidding firms have demonstrated major positive and significant CARs around the announcement date. Eun et al. (1996) explain these differences as a reflection of cultural and legal differences. On the other hand, shareholders of the UK acquirers suffered losses. One of the shortcomings of the paper is that researchers did not attempt to quantify and

study the cultural differences as factors that influence changes in the companies' value. Instead, the authors concluded that the interpretation of the findings is highly dependable on the sample selection criteria and the deployed methodology (the length of the selected event windows in particular).

On the other hand, Eckbo and Thorburn (2000) have shown insignificant negative CARs of almost -3.7% for the US bidders involved into cross-border deals. It would be fair to mention that a vast majority of the early papers studied only the US and the UK M&A markets, as international M&A's were an endemic phenomenon to the Anglo-Saxon financial world and only in the past two decades became a widely used type of strategic growth mechanism.

Kleinert and Klodt (2002) suggested that cross-border deals do not result in higher wealth gains for the acquirers' shareholders, primarily because of the higher risks of growth over the international barriers. Firm- and deal-specific factors define the success or failure of M&A deals almost entirely (Kleinert and Klodt, 2002). Generalising, the researchers distinguish four core factors that can explain the possible reasons why shareholders can generate higher gains after engaging in the cross-border M&A's: access to the foreign markets, international risk diversification, exchange rates effects and managerial issues (Danbolt, 2004).

Later in 2000s several papers attempted to perform a direct test of whether domestic or cross-border M&A's are better for the shareholders of both involved companies. In particular, Moeller and Schlingemann (2005) investigated the market of the US domestic and cross-border acquisitions that occurred in 1985-1995. The authors implemented the event study approach with market-adjusted estimation of the abnormal returns. The focused attention on the shortest possible event window of (-1;+1) around the announcement date. The results have shown insignificant CARs of approximately +0.3% for the cross-border subsample, while domestic deals resulted in significant value growth of almost +1.12%. It is worth mentioning, the authors also testified negative correlation between the abnormal returns of acquirers and the degree of restriction in the target's economy, and concluding that countries with less complex regulation are producing larger wealth gains for the outside acquirers. A similar approach was taken by Conn et al. (2005), who studied the takeover announcement effects for the UK firms between 1984 and 1998. The scholars considered the broad variety of the deals, with subsequent sub-division into smaller samples of public, private, domestic and cross-border deals and further

detailed analysis. Again, the event window of (-1;+1) around the announcement was deployed to estimate the market reaction on acquisitions. The findings have shown significant and positive CARs for domestic mergers (+0.68%) and significant positive CARs for the cross-border deals (+0.33%). Although the difference was not significant, the authors did not take steps to provide further insights on the domestic/cross-border mergers outcomes issue.

Interestingly, the interest of researchers towards the European M&A's was quite weak, resulting in the scarce number of studies reflecting the low quantity and volume of the M&A's (Lowinski et al., 2004).

Further, the scholars began to focus attention on the mergers in the particular industries, narrowing their interest. The banking sector was definitely no exception. Naturally, the financial sector began to grow exponentially in the early 1990s, motivated by the European liberalisation, thus encouraging researchers to study the effect of mergers on the financial institutions. A large number of countries in the EU allowed more flexibility to study cross-border takeovers. Initial literature undertook the efficiency approach but failed to find any improvements in costs' optimisation for the banks involved into cross-border M&A's (Berger et al., 2001; Vander Vennet, 2002). However, Vander Vennet (2002) has found some weak signs of profit efficiency improvements for cross-border deals comparing to domestic acquisitions.

However, further studies obtained mixed results. Beitel et al. (2004), for instance, have demonstrated that domestic mergers perform better than cross-border acquisitions, while Lepetit et al. (2004) and Ekkayokkaya et al. (2009) have produced reverse results. Also, Buch et al. (2005) attempted to compare actual and optimal cross-border portfolios for banking sectors in the US, the UK, France and Germany in 1995-1999. The authors came to the conclusion that banks are underinvesting internationally, as cross-border growth might result in both short-run (growth of the shareholders' wealth) and long-run (cost and profit efficiencies) advantages, as well as risk diversification.

2.3.3. Macro-determinants

After describing the deal-specific and firm-specific parameters that influence mergers, it is necessary to outline the factors that influence the merger process exogenously (e.g. the factors that cannot be changed or adjusted in the decision-

making process and should be taken as given). A brief discussion on the most important macro-factors that define the mutual dependence between mergers and the economy is presented below.

In particular, researchers were studying different aspects of the relationship between macro-factors and merger outcomes. The discussion on these factors is provided below.

1. Stock market

One of the first breakthrough studies on the connection between M&A's and the stock market was performed by Weston (1953) and further developed by Nelson (1959), who both asserted that the stock price causes significant influence on the total number and volume of the M&A activities. Particularly, Nelson (1959) investigated the mergers occurred in the period between 1895 and 1920 for the US market. The author found a significant and direct relationship between fluctuations in aggregate merger levels and stock prices.

Later studies took a more sophisticated approach. For instance, Melicher et al. (1983) implemented regression analysis of the time series data, covering the aggregate M&A activities in the US market. The researchers aimed to find out the influence of the core factors that define the economic conditions (level of the industrial activity, bankruptcy rates) and the capital markets conditions (bond yields, interest rates, stock prices). The sample included all the merger deals in 1947-1977. The authors demonstrated the weak and insignificant relationship between business conditions and takeover activities. However, capital markets seem to play an important role in defining the level of total mergers in the US market. Specifically, Melicher at al. (1983) pointed out that the changes in the merger activity are directly correlated with current and prior stock prices, and bond yields.

Other studies obtained mixed results. Geroski (1984) used Granger causality tests to investigate the relationship between stock market prices and mergers. He uses four different samples: monthly and quarterly for the US and the UK which differ in length and time period covered. However, the key shortcoming of this study is following: results from all four samples show that such relationships are spurious. Developing ideas of Geroski (1984), Guerard (1989) examined the relationship between US mergers, stock prices and industrial production for the period 1895-

1979. His results also suggested that stock prices or levels of the industrial production do not help in explaining mergers.

Clarke and loannidis (1996) investigated the relationship between stock market prices and mergers, using a Granger causality approach and UK merger data during the period 1971-1993. In contrast to previous studies, the level of M&A activity was measured by the number of deals and by the real value. Their findings testify that stock prices "Granger"-cause mergers.

Several relatively new theoretical approaches have been elaborated to describe the link between the merger activities and stock prices. These models are based on a concept dating back to Hickman (1953), who argued that in booming markets, investors might behave over-optimistically. These types of models are also known as "behavioural approach models". As long as managers make efforts to manage the timing of their strategic decisions, they benefit from the positive attitude of the markets. A growing stream of papers studying the role of timing in the M&A's has emerged, exploiting the neoclassical paradigm.

For instance, Shleifer and Vishny (2003) offered a theory that postulated the irrationality of the stock market and orientation on quick benefits by target management. The authors suggested that capital markets are irrational, implying that stocks are constantly overvalued in the short term. However, Shleifer and Vishny (2003) admit that the overvaluation degree largely varies across different industries and national economies. Consequently, if the acquirer's shares are overvalued, bidder's management is forced to use their stock as payment for the target. If the second assumption is recalled (targets' managers aim to maximise their own short-run benefits), the elaborated model can explain why target managers tend to accept even pure stock-financed tender offers. Shleifer and Vishny (2003) emphasise, that the short-term investors' perceptions can self-consistently result in the increase in the merger activity. However, the gains for shareholders are persistent only in the short run, as long-run stock prices converge to their efficient, zero-return level.

Rhodes-Kropf and Viswanathan (2004) applied the same logic to the problem and proposed another model which rests upon the rationality of M&A's. Their major development was to introduce an assumption, that bidder management possesses private information on their companies and on the future combined entity. Furthermore, target managers also have undisclosed private information on their firm. It is also important to keep in mind that market valuation might not reflect the

true value of both companies. Thus, the arising misvaluations can be divided into two components: firm-specific and market-specific. The authors point out, that market's expectations on the future post-acquisition synergies are correct in the equilibrium point. However, the limited information comes into play and distorts the valuation process, resulting in misvaluations. Rhodes-Kropf and Viswanathan (2004) also conclude that it is extremely difficult for the target firms to distinguish between market overvaluation in general and overvaluation of their own stock, in particular. Thus management of acquired company tends to overestimate the possible future synergies. As a result, the decision is biased towards acceptance of the bid; consequently, a number of the mergers in the market is growing. Authors also emphasise that the motivation to involve into M&A's can be caused by positive and negative industry shocks, technology shifts, deregulation campaigns or changes in the corporate governance. It would be fair to conclude that valuation aspects are extremely important factors that define the rise of merger waves, but should be considered in conjunction with other economic issues.

Developing the ideas of structural market misvaluations, Morellec and Zhdanov (2005) elaborated the theoretical model of M&A, which rest upon stock market valuations of the involved firms. Their framework captures imperfect information and competition, and attempts to predict exact terms of merger negotiations and timing of acquisitions by solving solutions for games with imperfect information between targets and acquirers. Their model predicts that the probability of wealth destruction for the bidders increases along with the variance in beliefs considering the future post-takeover synergies. Additionally, Morellec and Zhdanov (2005) have established that abnormal returns (as key criteria to measure merger outcome) tend to increase synchronously with the volatility of stock returns, and decrease in line with opposite movement of the counterpart's stock return.

The above-mentioned theoretical concepts demanded the empirical testing, and it was produced by several papers, who attempted to find practical evidence considering the impact of market misvaluations on the aggregate levels of M&A's. For instance, Vasconcellos and Kish (1996) studied the US stock market under conditions of depression in the 1970s and had found that economic decline in the US can motivate non-US companies to buy US targets. It is crucial to mention several empirical studies by Vasconcellos and Kish (1998), McCann (2001) and Kish and Vasconcellos (1993) which supported the hypothesis of a positive relationship

between stock prices level and merger activities. They have found that share prices influence M&A's intensity, but the evidence on the direction of the movement remains inconclusive.

Further, Ang and Cheng (2003) tested several hypotheses based on the theory of stock market driven acquisitions. The authors collected the sample of approximately 3000 mergers in 1981-2001, and their results suggest that the probability to become an acquirer is in direct relationship with the degree of overvaluation. Their findings also provided evidence in support of the statement that completed mergers were associated with higher overvaluation than unsuccessful acquisitions. Assuming that any mismatch in asset prices should be corrected in the long run, Ang and Cheng (2003) compared long-run buy-and-hold abnormal returns (BHARs) for the successful bidders with the control sample of firms that were not involved in the M&A activities but still overvalued. It was found that the benefits of shareholders in equity-financed takeovers are much higher for the bidders that took part in the merger processes. The findings of Ang and Cheng (2003) testify that overvaluation might be an autonomous driving force for the stock-financed acquisitions.

Further, Rhodes-Kropf et al. (2005) performed a direct test of model predictions by Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004) in their paper. The degree of overvaluation was considered to be a factor that defines the level of aggregate merger activity and the payment type. The key idea of the empirical study was to decompose market-to-book value into two parts: value-to-book and market-to-value. The authors produced evidence supporting the initial hypothesis of valuation-driven merger activity. Furthermore, the results have shown that bidders tend to commit more valuation-related errors that targets.

Developing the existing findings, Baker et al. (2009) broadened the scope of the research by studying international perspective of M&A's. The authors argued that cross-border acquisitions can be driven by the same stock overvaluation, and sometimes the effect can be even stronger. For instance, a bidder from the country with "overheated" stock market would experience these effects if the decision to buy a target company from a country with the undeveloped stock market is made. Baker et al. (2009) termed their concept "cheap financial capital hypothesis" and explained the aggregate level of takeovers in the same manner as Shleifer and Vishny (2003).

Summarizing, most academic studies have indicated that stock prices level is directly related to the aggregate merger activity. In contrast, there is no agreement considering the effects of the macroeconomic factors on takeovers. Unfortunately, the market for the EU mergers has received almost no consideration in these studies.

2. Macroeconomic aggregates

Macroeconomic aggregates are also considered as important factors that influence the market M&A's outcomes. The research evidence indicates that external drivers play an important role in the merger-related decision-making process by providing the context when a company decides to acquire another firm.

The scholars distinguish several factors that received attention in the academic literature.

a) Money supply

Widely recognised neoclassical theories point out the prominent role of external shocks (regulatory, technological, economic, etc.) which determine the outcomes of mergers (Gort, 1969). However, more recent researchers emphasise that these shocks are insufficient to be the unique and complete explanation for merger activities. Thus several researchers regard money supply as one of the key reflections of macroeconomic conditions (so-called "monetarist approach").

As Fishman (1989) pointed out, growing money supply increases the number of buyers by reducing borrowing costs and expanding disposable income. The study of Mueller (1989) has clearly shown conjunction of mergers with upturn cycle in the real economy and capital markets. During upturn cycle phase companies possess large amounts of cash and are more likely to spend in the M&A market (*ibid*). Such scholars as Clarke and Ioannidis (1994) and Resende (2008) stressed the importance of the excess liquidity which determines the total number of acquisitions in a particular period of time. These findings are consistent with findings obtained by the researchers who were studying an aggregate number of mergers (Harford, 2005; Gartner and Halbheer, 2006).

Nevertheless, the role of liquidity and money supply in defining quantity and configuration of the merger deals is studied insufficiently. The influence of the recent financial crisis and the possible implications for the new merger wave were not analysed in the literature yet.

b) Exchange rate

Exchange rates are one of the key factors that are important in the process of negotiating cross-border acquisitions, as different currencies contribute to the additional risk of the changes in corporate value after the merger. For instance, bidders from a particular country gain a potential advantage if the currency of this country rises in value: acquirers have to pay a lower price for foreign companies, thus motivating bidders' managers to involve into M&A's. This idea is totally in line with the opinion expressed in Vasconcellos and Kish (1996), who proposed a hypothesis that relative exchange rate between national currencies of target and bidder is an important factor in connection to merger outcomes. Weston and Jawien (1999) followed this framework when they showed the mechanism of exchange rate influence on the transaction costs, payment method and the post-acquisition integration costs.

The empirical aspect of cross-border M&A's was addressed in the study by Froot and Stein (1991), who considered the scenario of the depreciating US dollar. The authors provided evidence that foreign companies are in advantageous condition comparing to the domestic US firms. Evidently, the scenario of the appreciating dollar has demonstrated inverse results. Further studies by Harris and Ravenscraft (1991), Kang (1993), Dewenter (1995) and Goergen and Renneboog (2004) focused on the empirical testing of initial theoretical hypothesis and supported the theory of exchange rates. The authors pointed out that other things equal, countries with appreciating currencies might be involved in M&A more intensely, acquiring targets from the countries with a depreciating currency. Nisbet et al. (2003) tested this assumption and produced consistent results for the comparison of the UK and the US markets: the appreciation of the British pound resulted in a larger number of the mergers between UK acquirers and US targets. However, earlier studies by Stevens (1992); Healy and Palepu (1993) have found little support to the significant effect of exchange rates on the number of M&A's.

c) Interest rates

Existing literature on economics and investments regards base interest rate as a powerful instrument to stimulate international investments. Moeller and Shlingemann (2005) admit that transaction costs and costs of merger financing affect

the total acquisitions expenses. Consequently, the interest rate can be considered as a dominant factor that can encourage or suppress total takeover activities. These notions are supported by Tolentino (2010) who hypothesised that low interest rates serve as a powerful stimulus to encourage cross-border capital inflow and therefore increase the number of cash-financed cross-border deals, as foreign companies utilise the possibility to diversify their assets and benefit from favourable investment conditions.

Theoretical studies were accompanied by papers that tackled the problem empirically. The majority of them concentrated on the connection between FDI inflows and interest rate as a key regulating instrument, considering M&A's as a special case of FDI. For instance, Aliber (1970) has found out that lower financing costs in the US market due to a period of low base interest rate in the 1960s had a positive impact on the number of the M&A deals. Barrel and Pain (1996) considered the capital costs in a broader manner and testified positive correlation between transaction costs and outward investments (which consisted vastly from cross-border mergers). More recent papers confirmed the validity of above-mentioned results. Forssback and Oxelheim (2008) and Pablo (2009) admitted in their studies that the cost of capital could independently explain the strategic decision to engage in takeover activities. Uddin and Boateng (2011) developed these ideas and showed that financial synergies are much easier to be materialised under a scenario of lower costs of capital borrowing.

d) Inflation

Another important macroeconomic indicator that should be considered in the context of its impact on the M&A market is inflation. In theory, inflation influences both the cost of capital and the profitability of the firm, thereby playing an important role in the decision-making process prior to the tender offer. For instance, McKinnon (1973) argued that higher inflation rates motivate firms to increase their expenses as it becomes less efficient for the rational management to hold cash on accounts. On the other hand, Fisher's equation, that describes the link between nominal interest rates and inflation rates, proves that nominal interest rates are always higher than real interest rates (Phillips, 2005). Under the scenario of high inflation rates, the international investment is discouraged, reducing a number of the potential acquisitions, as long as high inflation creates conditions of reduced profitability and

high borrowing costs. Further, Gugler et al. (2012) argued that firms are motivated to buy more assets in the form of M&A's or capital investments if company return on its capital exceeds the cost of capital.

e) GDP

The influence of GDP on a number of M&A's and post-merger performance was researched as well. For instance, it is anticipated that the larger GDP growth rate influences post-acquisition performance positively (e.g. King and Levine, 1993; Levine, 1997; Rajan and Zingales, 1998; Levine and Zervos, 1998).

One of the few papers that study the European market and tries to find out the effect of macroeconomic indicators on the takeover activities is the study by Ali-Yrkko (2002). The author considers the sample of Finnish acquisitions and compares it with another sample of mergers in other European countries. It was found out that GDP, market capitalisation and capacity of the stock market can explain the great part of the cross-sectional and time-related variance in post-acquisition abnormal returns. The results of Ali-Yrkko (2002) lead to the conclusion that the GDP growth rate can be a powerful driver of the cross-border takeovers.

Another paper that studies the European M&A market and focuses on the financial sector is Aminian et al., (2005), who analysed the macroeconomic aggregates for the sample of EU mergers in the banking industry between 1999 and 2004. They find GDP growth rate and exchange rate to be the main drivers of M&A. Several other influential studies (e.g. Molyneux and Thornton, 1992; Staikouras and Wood, 2003; Abreu and Mendes, 2001; Pasiouras et al., 2005) have tested the impact of macroeconomic variables (GDP, interest rate, unemployment rate) on the post-acquisition profitability of the EU banks. ROI and ROA were selected to be a proxy of corporate financial performance, as post-merger positive or negative effects would be reflected in the accounting data. However, no significant relationship was found. Finally, Neto et al., (2010) considered M&A's as a specific case of FDI's have found that nominal GDP and GDP growth rate was insignificant. However, it was revealed that several other variables are significant and positively correlated with larger volumes of the foreign direct investments, including M&A's: openness of the economy, size of the economy, level of corporate governance, human development index.

3. Introduction of the euro

The adoption of the common currency in the European Union can be regarded as an event that had a strong structural impact on the economic environment where European companies operate. It was one of the landmarks of the consolidation and harmonisation processes that started in the early 1990s. The report by Group of Ten (2001) provides an overview of the mechanisms that can connect adoption of the euro and the market of M&A's. Briefly, regulators distinguish following factors: impact of the common currency on the treasury activities in the corporate sector, integration of the money and capital markets, unification of the market of government bonds and facilitation of borrowing capital. Consequently, these changes open the wide potential for the firms to reach costs optimisation, more transparent asset valuation and easier subsequent materialisation of synergy gains.

The aspect of the uniform European currency was investigated only in several studies. For instance, Ekkayokkaya et al. (2009) have examined the European banking M&A's between 1990 and 2004 and reported that returns to acquirers in banking M&A's have decreased in the post-euro period, relatively to the pre-euro period. The introduction of the joint currency has increased the competition between financial institutions, resulting in significant losses for the bidders in the "post-euro" period.

As distinct from Ekkayokkaya et al. (2009), Ilkovitz et al. (2007) and Coeurdacier et al. (2009) contend that as the euro has eliminated country-specific regulatory and financial market barriers, the abnormal returns to bidders should increase in the post-Euro era relative to the pre-Euro era. This is so because the introduction of the euro would have caused Eurozone firms to access wider growth opportunities. The most recent study by Perera et al. (2013) has found that the short-run post-merger abnormal returns to the European acquirers were greater in the post-euro era than in the pre-euro era. In other words, the gains associated with the more integrated Europe after the adoption of the euro (due to the expanded set of opportunities) seem to have outweighed the negative pressures created by heightened competition.

4. Legal environment

Another issue that is tightly linked to the previous factor of deregulation is the general legal environment of the countries that are involved in the M&A activities. Several researchers distinguish legal environment as separate macro-determinant that play an important role in the M&A's (especially for cross-border takeovers). Primarily, it is crucial to emphasise that the impact of legal environments on the acquisitions is studied quite scarcely. The majority of the studies investigate the US market, and only a few of the papers concentrate on the financial sector (in the US). The key findings are presented below.

The theoretical background is following. Since the investigation by La Porta et al. (1998), plenty of papers studied the link between legal environment and its impact on the firm value around mergers. As is widely considered in theory, "strong" and inflexible institutional system is frequently connected to high investor protection, which in turn increases the costs of acquiring stock by the minority shareholders (La Porta et al., 2000; Starks and Wei, 2004; Dyck and Zingales, 2004; Conn et al., 2005). On the other hand, flexible and market-oriented regulatory environment encourages economic freedom and business activities, which in turn boosts inflowing investments and capital markets (simultaneously reducing borrowing costs)(Rossi and Volpin, 2004; Hagendorff et al., 2007). Effective corporate governance systems are possible only in countries with developed capital and stock markets and advanced institutional network of regulators.

The results of empirical studies are somehow mixed. Whereas some researchers demonstrate positive market reaction to the mergers in flexible regulation systems (Moeller et al., 2004; Hagendorff et al., 2007; Bris and Cabolis, 2008; Kuipers et al., 2009), others produce contrary findings (Francis et al., 2008).

In one of the cornerstone papers of 2000s, Rossi and Volpin (2004) studied the impact of shareholders' protection on the post-merger changes in the shareholders' wealth for both bidders and targets. The authors have shown that national economies with more developed shareholders' protection experience higher levels of takeover activities. Furthermore, it was revealed that the common practice is following: bidders from countries with more effective investor protection acquire targets from less effective and weaker regulatory systems. Rossi and Volpin (2004) explained their findings that the bidders are able to improve the asset efficiency of targets only by transferring them to more effective regulatory environment. However, the aggregate for the acquirers is not clear from the study, as they experience higher

transaction costs and a potential threat of deal blocking by authorities. This shortcoming was not addressed by authors. Thus, further attempts to address the problem of legal and regulatory environment in the cross-border M&A's were undertaken.

Moeller et al. (2005) investigated the wealth effects of the mergers of the American firms that occurred in 1985-1995. The authors hypothesized, that weaker and less effective regulatory systems imply existence of stronger information asymmetries and more powerful agency problems, which in turn would result in higher premiums, but did not find significant results. The authors also admitted that firms in less harmonised legal environment tend to have more concentrated ownership structures. In further studies, Francis et al. (2008) were more successful. The authors have demonstrated that the US bidders received significant gains from acquisitions of targets from less effective regulatory environments. The reason is that acquirers are able to provide target firms with access to cheaper financial funds. The average cost of capital in the US is directly related to the post-merger wealth gains. Francis et al. (2008) conclude that cross-border acquisitions can be regarded as an alternative mechanism to avoid market inefficiencies. The authors point out that the differences with findings by Moeller et al. (2005) can be attributed to the lower transaction costs during the fifth merger waves in late 1990s and early 2000s.

Hagendorff et al. (2007) developed ideas of the above-mentioned researchers and studied the abnormal return of the financial companies that were involved in mergers between 1996 and 2004 in the US and the EU. The scholars considered subsamples of cross-border and domestic M&A's. The results testify that weaker and less effective regulatory and legal environment in the target country has positive impact on the acquirers' CARs, as bidders gain access to the undervalued assets that can be utilised more effectively in the future, generating higher synergy gains. Normally, lower premiums are compensation for the information asymmetries and agency problems that were confirmed to be the most important factors in the analysis.

In another paper, Bris and Cabolis (2008) studied financial mergers that took place between 1989 and 2002 globally and produced contrary results. It was found that bidding companies pay higher price for the targets' stock, if the deal involves less effective regulatory system than in case of the domestic takeovers. The researchers explained higher premiums by the presence of more concentrated

ownership structures, forcing targets' managers to demand higher price in case of incoming tender offer.

Further, Martynova and Renneboog (2008) did not manage to clarify the analysed issue. The authors focused on the European market of the financial M&A's during fifth merger wave (1992-2001). It was found that acquirers experience larger abnormal returns around the announcement date if a target originates from a country with weaker or stronger legal systems compared to the bidders' system. Martynova and Renneboog (2008) admitted that these findings can confirm the presence of the "spill-over effect", that extends the positive effects of stronger law to the target firms. On the other hand, the reverse scenario (when targets originate from countries with more effective regulatory environment) was termed "bootstrapping effect", as acquirers can improve their governance system voluntarily and on a unilateral basis. Interestingly, authors reject "law spill-over effect" for the second case, making impossible for the above-mentioned effects to be active simultaneously.

Summarising, it is possible that more effective regulatory system in the target's country of origin might reduce the wealth gains for the bidder companies. This is valid only in situations when acquirers are obliged to pay a higher price because of targets' high concentration and transaction costs (Starks and Wei, 2004). The acquirers, however, may obtain substantial gains from mergers with opaquely structured firms, which would attempt to attract potential buyers by lower premiums (Kuipers et al., 2009). On the other hand, it is also possible that acquiring firms can benefit from mergers with targets that are operating in the more developed legal system, primarily by adopting higher governance standards (Martynova and Renneboog, 2008). The aggregate result for bidder companies is still unclear. In one of the early attempts to generalise the post-merger outcomes, Levine (1997) indicated that the adaptability of the financial system is directly linked to the flexibility of the legal environment. Thus Levine (1997) brought the discussion to the higher abstraction level, assuming that separate analysis of the regulatory system is not consistent. He also pointed out that more broad category of "legal regimes" can define the behaviour of companies and institutions in the market more effectively. Eun and Resnick (2012) developed those ideas in their study and introduced the following classification: common law system (UK, Ireland, Cyprus) and civil law system (other EU members), with latter further subdivided into Napoleonic (French, Spanish), German, Scandinavian (Norway, Sweden, Finland, Denmark) and mixed

traditions systems. The impact of the above-mentioned legal system on the post-merger performance in the financial sector has not yet been sufficiently investigated in the academic literature.

5. Global financial crisis

The global financial crisis can be undoubtedly considered as an independent factor that played an important role in the M&A's. Although the phenomenon of the financial crises is widely viewed as specific reflection parameter of economic cycles (Harford, 2005), the recent credit crunch was an important phenomenon to be analysed stand-alone in the light of influence on the M&A's outcomes. Mergers during the financial crises can possibly have positive effects on the bidders' CARs, as acquirer companies would be involved into geographic diversification (Hughes et al. 1999), portfolio diversification (Emmons et al., 2004), activity diversification (Van Lelyveld and Knot, 2009; Hankir et al., 2011) when the prices for the competitors assets are low. The dramatic fall in the number of the potential buyers and rapid growth of companies that can be potentially considered as future targets might cause more accurate reflection of the true value in the stock prices and reduce the issues of the asymmetric information (James and Wier, 1987). It is also important to admit that some banking M&A's can occur due to the direct instructions issued by the regulators, who aim to prevent the long-term of the existence of the undercapitalized banks or to bail-out distressed institutions (Koetter et al., 2007). Obviously, the cumulative abnormal returns are usually negative in such "forced" mergers. The report of the Group of Thirty also emphasises that some proportion of the acquisitions can be inspired by the targets' management who are seeking for the takeover in order to avoid bankruptcy and the merger is regarded as more efficient scenario (Group of Thirty, 2009).

It can also be hypothesised that the importance of the due diligence procedures increases during the crisis, as more efforts have to be applied to overcome the negative effects of the information asymmetries and to establish the true value of the assets. Kwan et al. (2010) confirm the problem of assets' opacity during the financial crisis. Beltratti and Paladino (2013) express the same opinion, acknowledging the dramatic rise in opacity among assets at the beginning of the financial crisis. The mechanism of the crisis expansion is also important in this context. It is widely agreed that the crisis was initially proliferating because of large volumes of toxic

mortgage-backed securities on balance sheets. The increasing uncertainty considering the liquidity of such financial instruments caused information asymmetry to grow exponentially and to distort valuation even further (Beltratti and Paladino, 2013).

Normally, the process of takeovers involves due diligence procedures that establish the true value of the target's assets. The importance of these controlling mechanisms is increasing during the periods of general uncertainty expressed by investors in the market. The objective of the bidders is to establish the stake of low-quality assets in the target's ownership structure to minimise the uncertainty. Jones et al. (2011) confirm the crucial nature of due diligence procedures, testifying that revaluations and other positive information were present in the analysed sample of the US-based banking mergers between 2000 and 2006. Another interesting remark is made by Beltratti and Paladino (2013), who point out that average time periods before the deal is completed are generally larger during the financial crisis. This scenario is obviously driving abnormal returns down, as stronger information asymmetries and a higher probability of sudden adverse changes could motivate counterparts to terminate the negotiations prematurely.

Saqib et al. (2013) took a different approach. The authors implemented Merton's distance-to-default (DD) methodology and have found no viable relationship between the intensity of the takeover activity in the European banking industry and risks of banks during the financial crisis (particularly, solvency and bankruptcy risks). Overall, the researchers concluded that M&A activity during the financial crisis was risk-neutral for the involved financial institutions, except for sub-sector of investment banking.

An important paper by Beltratti and Paladino (2013) took another approach and investigated the difference between outcomes of the European banking M&A's during the financial crisis and before it. The scholars implemented classic event study methodology and were the first to measure abnormal market reaction on mergers not only on the announcement date, but also on the date of the official deal completion. Their findings reveal that investors considered the completion of the deals significant, and the finalised mergers were rewarded with positive CARs. The difference in abnormal returns was explained by Beltratti and Paladino (2013) as a trade-off between higher volatility and realisation of the deal during the crisis. Additionally, one of the possible improvements can be extending the sample length

in order to include several upward and downward phases of economic activity; theoretically, it would help researchers to compare the outcomes of the European banking M&A's before and during the crisis more precisely.

However, Ng et al. (2010), who utilised the same approach in their investigation of the US and EU banking mergers between 2004 and 2010 have found no difference between pre-crisis and crisis merger outcomes from M&A's. Interestingly, it was established (and these remarks are in line with authors' thoughts on further research), that several improvements can be performed in order to improve the validity of the results. Firstly, considering the highly volatile markets and unstable investors' attitude towards M&A's, it could be useful to implement larger event windows in order to establish whether positive or negative market reactions persist for longer periods of time. Secondly, as long as the existing literature on the EU banking mergers is quite inconclusive and covers EU-15 at best, it would be interesting to examine a wider range of the European countries, especially in the light of past EU expansion waves. These ideas are incorporated into the analysis in the thesis.

6. Financial deregulation

As the banking sector is a key focus of the thesis, it is also important to outline the factor specific to the banks. The financial sector generally and the banking sector, in particular, were historically under scrupulous attention by regulators, primarily because of the importance of the field for the economy and immense volume of funds the financial institutions are operating. The M&A processes were no exception. The regulators usually distinguish five key mechanisms that governments implement to influence the processes of M&A's (Group of Ten, 2001):

1) through market competition and entry barriers;
2) through approval decisions for merger transactions;
3) through limits on the range of permitted activities;
4) through public ownership of companies;
5) through minimisation the social costs of bankruptcies.

Nellis et al., (2000) testify, that only establishment of European Single Market enabled banks to offer cross-border services on the united market basis (so-called "Single Banking License" initiative, adopted in 1992) and therefore universal banking model was created, bringing first success to deregulation procedures.

European Commission has also implemented Financial Services Action Plan in 1999 in order to tackle differences in the accounting rules and prudential practices that were another barrier on the way to financial integration and the creation of a single regulatory framework in banking (Hamoir et al., 2002).

There have been several attempts to investigate the impact of regulatory environment on the shareholders' value of merging companies. For instance, Brady and Feinberg (2000) studied 20 acquisitions in 1991-1995, that were subject to the investigations of the European competition authorities, which were performed according to the EU merger regulations since 1990. The authors emphasise that their sample included the first merger deals that were examined by the EU formal powers. Brady and Feinberg (2000) attempted to find any evidence in support of the legislation regime effects and individual effects on the shareholders' value of both acquirers and targets. It was revealed that all possible impact was insignificant and weak. As was initially assumed by theory, if the merger deal was temporarily suspended because of "competition infringements", the stock prices plummeted almost immediately, resulting in wealth losses. The authors also admitted that investors were unable to predict the decision of the EU authorities, which can be explained by the novelty of the anti-trust regulations.

Another influential paper by Aktas et al. (2007) attempted to test whether EU merger investigations were unfair and biased against cross-border deals involving non-EU bidders. Their findings were contrary to the results of Brady and Feinberg (2000). It was established that market investors were able to anticipate deal suspension and the stock prices moved down before the official announcement by authorities. Further, Duso et al. (2007) found out similar effects in their analysis of the competitors' share prices in case of the merger announcements. The authors were following the methodology offered by Eckbo (1983) and developed by Stillman (1983). Duso et al. (2007) argued that admittedly announced competition-infringing merger cause positive effect on the competitors' stock prices, mainly because competitive forces would be reduced, pushing profit margins and abnormal returns upwards. Consequently, authors draw a surprising conclusion that positive movement of the competitors' stocks can be regarded as a reflection of the anti-competitive nature of a particular takeover.

Some researchers admit that despite all legislative and political efforts, European financial sector is still not integrated (Carletti and Vives, 2008). The

authors also point out to the exact examples where interaction between European Commission as supervision authority and national banks as competition regulator is hindered (for instance, banking mergers of BNL – BBVA and BA – ABN-AMRO in 2005), which are illustrative examples of substantial barriers on the way to market consolidation.

Furthermore, Koehler (2010) points out that the lack of regulatory transparency in the European Union is a substantial barrier on the way to the consolidation of the financial sector. Karolyi and Taboada (2014) provide evidence that target abnormal returns are in direct dependence with the quality of the national banking supervision system.

Some analytic reports outline high uncertainty level concerning new regulatory and legislative issues that have been anticipated by the key market players (KPMG, 2014). The prohibition of proprietary trading and structural separation between credit institutions and trading activities that occurred after the financial crisis in 2009, can probably be core factor that will define European merger activities in the financial sector in the nearest future (PwC Report, 2013).

As the financial crisis exposed the extreme level of risk in the banks, the authorities reversed the deregulation trend, intensified the supervision efforts over the financial sector and have identified the method to regulate the soundness of banking institutions – via capital requirements.

7. Capital requirements

Capital requirements are considered as a specific factor of influence for the mergers among banks. These regulatory norms can be theoretically interpreted as a reflection of the regulatory environment in the banking sector. Remarkably, the legislation that regulates the financial industry experienced important changes during recent twenty years. Regulatory factor as a parameter influencing M&A outcomes can also be considered pan-European, which fits the area of interest of the thesis.

The Basel Committee on Banking Supervision first introduced minimum capital requirements for banks (Basel I) and the financial institutions adopted these changes in G-10 countries in 1992. Crucially, Basel Accord attempted to decrease the risk of the global financial sector and reduce competitive inequality originating from discrepancies in the regulatory regimes in different countries. This Agreement elaborated common definition of bank capital and introduced its division into two

tiers: Tier I (core capital) and Tier II (supplementary capital). Briefly, financial institutions were obliged to hold 8% of the total capital (4% in Tier 1 and 4% in Tier 2) measured depending on the riskiness of the underlying assets. The methodology to estimate maximum level of risk in the banks' assets was implemented in the Solvency Ratio Directive (1989) and the Capital Adequacy Directive (1993). According to the new Basel III Agreement, banking institutions have to hold 6% of core capital, while the total capital ratio remains frozen at the level of 8%.

Table 1 summarises the proposed Basel III regulation.

Table 1. Basel III regulations for banks

Bank Capital Regulation	
Components	Minimum Requirement
Core capital (Tier 1) of which common equity Tier 1 Total capital (Tier 1 + Tier 2) U.S.: Leverage ratio	≥ 6% of RWA ≥ 4.5% of RWA ≥ 8% of RWA ≥ 3% (6%)
Capital Conservation Buffer	
Common equity Tier 1	additional 2.5% of RWA
Counter-cyclical Buffer	
Common equity Tier 1	additional 2.5% of RWA

RWA – risk-weighted assets
Source: Lambertini and Uysal (2014), p.7

Nearly all papers that tried to assess the role of capital for banking institutions investigated the US market. The researchers adhered to two approaches in their investigations in the banking takeovers. The first stream of literature utilises market data in an attempt to estimate the reaction of the stock market on the M&A announcements. These studies usually test the hypothesis of whether sufficient capital requirements increase the shareholders' wealth of both bidders and targets. The second stream of research focuses on the question of whether capital requirements motivate banks to merge. Subsequently, the changes in cost/profit efficiency are assessed in the post-merger period.

On the one hand, the studies by Hannan and Rhoades (1987), O'Keefe (1996), Moore (1997), Wheelock and Wilson (2000) and Akhigbe et al., (2004) testify that undercapitalised banks are more attractive as targets for the acquisitions. In particular, Hannan and Rhoades (1987) argue that banks with sufficient Tier 1 and Tier 2 ratios require additional premium for their soundness, which discourages potential buyers. In the same manner, Wheelock and Wilson (2000) point out, that

banks with lower regulatory capital are closer to the bankruptcy and thus will be motivated to seek for potential acquirer. On the other hand, O'Keefe (1996) and Akhigbe et al. (2004) demonstrate that capitalization rates are usually higher by targets, comparing to the subsample of the bidders, but lower if compared with companies that were not involved in M&A's. This finding allows concluding that undercapitalised bidders are motivated to engage in takeover activities in order to improve their financial soundness. Additionally, Akhigbe et al. (2004) confirm that lower capitalisation of the bank increases its probability of being taken over. The authors argue that overcapitalized targets allow bidder to have their losses (current or potential) absorbed and avoid additional capital injections.

Another interesting paper that examines the role of capital requirements in the M&A's is a study by Hannan and Pilloff (2004). The researchers concentrated on the bank holding companies (BHCs) in the US from 1993 to 2002 to determine whether adoption of the Basel Accord would increase merger activity in the US banking industry. The key hypothesis states that overcapitalized banks have higher probability to be involved in M&A's as both bidders and targets than banks with average or low capital requirements. The authors provide at least two possible explanations. Firstly, undercapitalised banks wishing to be involved in merger negotiations can be deterred by regulatory authorities, primarily because the level of risk-weighted assets of the combined entity would be too low. Thus, potential bidders are motivated to choose overcapitalized targets in order to reach "compensation effect". Note that institutions with excess or average levels of obligatory capital would not experience these problems. Secondly, banks with higher soundness are able to free out a fraction of their capital and boost the shareholders' wealth. These actions can potentially increase the value of the bank, which might make merger negotiations easier. Their findings indicate a small positive relationship between excess capital and merger activity that is statistically significant when M&A activity is measured by the number of completed mergers but statistically insignificant when it is measured by the relative size of the acquisition. It is possible to conclude that the "excess capital hypothesis" is partially supported. Despite the statistical significance, the lack of economic significance of the results lead the authors to conclude that there is no convincing evidence that adoption of the Basel Accord will have any effects on merger activity in the US banking industry.

However, the study has two main limitations that prevent it from being generalizable and requires improvement that would be carried out in this thesis. Firstly, the study considers only BHCs with assets exceeding $15 billion. BHCs have an advantage over traditional banks in that it is easier for them to raise capital and make acquisitions, therefore focusing on BHCs could seriously bias the conclusions. Secondly, authors focus only on the US market, while the EU market is currently understudied and can potentially provide other findings on the role of the regulatory capital.

Another influential study by Valkanov and Kleimeier (2007) has investigated the role of bank regulatory capital in the M&A's for the combined sample of US and EU financial companies. Valkanov and Kleimeier (2007) build their examination on Hannan and Pilloff's (2004) study and address its weaknesses by focusing on banks, including both the US and the European banking sectors, and exploring whether target banks have higher volumes of obligatory capital than bidders and non-merging peers. They examine 105 pairs of acquirer-target banks for differences in pre-merger Tier 1 ratio and find that target banks usually are better capitalised than their bidders. Their interpretation is that it is the high capital of these banks that makes them attractive targets for takeover because acquirers can make use of the excess capital, for instance by freeing it up to increase their own ROE as suggested by Hannan and Pilloff (2004). Another finding is that US banks tend to be better capitalised than European banks. Valkanov and Kleimeier (2007) testify that merger pairs that had greater relative capitalisation had higher CAARs following a merger announcement. Although results are only partially significant at the 10% level, the findings provide some evidence that capital markets reward acquirers for bidding for targets that have a high potential to have their excess capital reduced. The authors argue that this is an indication that the market considers banks with high capital ratios, i.e. those holding a relatively large buffer, as inefficient users of capital. Given that banks tend to target underperforming banks and that a bank can increase its ROE by cutting any surplus capital as stated by Hannan and Pilloff (2004), Valkanov and Kleimeier's (2007) findings suggest that the reason for this acquisition premium is the anticipation of the financial market. Investors expect that acquirers would "trim" their underperforming targets' capital and rewards them in advance for any associated improvement in performance. If this is indeed what occurs, two predictions can be drawn from this study: first, the capital adequacy ratio decreases after merger, reflecting the process

of freeing up excess capital by the acquirer. Second, this capital "freeing up" results in the improvements of the post-merger performance.

Other explanation was produced by Hernando et al. (2009): if an excess level of capitalization implies bank's ineffectiveness in the diversification of assets, these banks would be more desirable targets for their competitors who can find better ways to allocate given assets of a target bank. Nevertheless, Hernando et al. (2009) did not find significant evidence in support of their initial hypothesis. The authors were also unable to reveal neither positive nor negative link between minimum capital requirements and changes in the shareholders' wealth (in both subsamples of the domestic and cross-border M&A's).

Although a vast body of literature has investigated gains from mergers and acquisition, few studies have considered a direct link between post-merger performance improvements and the regulatory capital from the accounting data perspective. Altunbas and Ibañez (2004) investigate whether M&A's between banks with similar attributes, including capital ratios, improves the operating performance of the acquirer after the takeover. The authors argue that capital may be used to give signals to the markets about the bank's expectations regarding its future performance. In a situation where greater equity capital is considered to be a signal of quality, an acquirer may target a bank with a large capital reserve to create a favourable signal to the market. This rationale is contrary to the more widely accepted view that good quality banks signal their quality by taking on more debt in an effort to distinguish from poorly performing banks.

To sum up, a review of the relevant literature indicates that regulatory capital has an inconclusive role in the outcomes of bank mergers. Most of the studies focus on the pre-merger situation and find that banks holding a high level of capital have a greater tendency to become targets of acquisitions. Capital markets reward acquirers of those highly capitalised targets, where the potential to reduce the excess capital holding is greater. To date, however, there has been little discussion as to whether acquirers act on these signals from the financial market. In particular, two questions have not been addressed: are acquirers observed to reduce the capital ratio of their targets, and if so, what effect does this have on their post-merger performance?

Summarising, the macro-factors are important parameters, that define the M&A activity from both neoclassical and behavioural approaches. While some of the

factors have received substantial attention in the existing literature (stock market, regulatory aspects), these parameters are necessary to be re-evaluated in the light of the latest financial crisis.

2.4. Post-merger performance studies

The existing literature also provides an array of extensive research on the post-merger performance. The empirical studies that investigate banking mergers and acquisitions can be classified in the following way, according to the methodology that has been deployed:

- market-based studies, reflecting external (market) reactions on the takeover;
- studies based on the accounting data, investigating the change of firm-specific accounting ratios (cost/profit efficiency, capital adequacy, loans/deposits quality, etc.);

2.4.1. Market performance studies

Market-based studies rely on the stock prices as a measure of market reaction to the merger events. Scholars distinguish two separate groups: short-term horizon, which covers the periods up to 60 days prior and after the merger event (Brown and Warner, 1985) and defines how fast information is captured by changes in stock prices, and long-term effects horizon, which covers the periods from 6 months up to 5 years prior and after the merger event (Kothari and Warner, 1997; Barber and Lyon, 1997; Lyon et al., 1999). Traditionally, scholars use wide range of event windows: the shortest cover (-1;+1) and (-2;+2) days around the merger announcement (Mitchell and Lehn, 1990; Sudarsanam and Mahate, 2003; Andrade et al., 2001), while the longest event periods classified as short-term studies deploy (-60;+60) days around the trigger event (Sudarsanam and Mahate, 2006). The long-term studies, initially introduced by Barber and Lyon (1997), usually use event windows varying from (0;+1) or (0;+2) years (Gregory, 1997) to extreme cases of (-5;+5) years around the announcement date (Baker and Limmack, 2001). The subsequent discussion outlines the key results and determines the most important contributions to our understanding of banking merger mechanisms.

2.4.1.1. Short-term performance studies

In general, the studies that investigated short-term effects of M&A's cover developed markets and produced extensive, but mixed results. Initially, the majority of the studies focused on the US market, beginning from the cornerstone paper by Fama (1969) up to the early 1990s. The scholars concentrated on the market-based approach, studying the abnormal returns for bidders and targets.

One stream of literature considered the post-merger effects (Mandelker, 1974; Firth, 1980; Asquith and Kim, 1982; Asquith, 1983 and Siems, 1996). Their findings were supporting the initial hypothesis that M&A create significant wealth for the target firms.

For instance, Mandelker (1974) performed one of the first consistent studies on takeovers in the American market, but did not manage to find changes in the bidders' value around the announcement. Further, Dodd and Ruback (1977) came to a different conclusion: the authors have found significant positive CARs of almost +2.83% for their sample of acquirers and +20.58% for the targets. Both results were statistically significant. Following their techniques, Jensen and Ruback (1983) and Conn (1985) found supportive evidence that bidders are likely to obtain gains from the merger announcement. On the other hand, Roll (1986) did not confirm their result, concluding that bidders' CARs were insignificant and close to zero.

Several further studies continued to study US mergers, focusing on the event study methodology. For instance, papers by Bradley (1980), Bradley et al. (1982), Jarrell et al. (1988) and Jarrell and Poulsen (1989) investigated tender offers in the US market. Remarkably, all studies except Jarrell and Poulsen (1989) concluded that bidders normally experience significant positive CARs between 2% and 4% in the short-run horizon, while targets manage to bring their shareholders around 20-30% of additionally generated wealth. Only Jarrell and Poulsen (1989) testified insignificant returns close to zero for the bidders.

Asquith (1979) developed the methodology initially introduced by Dodd and Ruback (1977) and applied two-factor market model as a return benchmark in the study of the US mergers. The authors revealed statistically significant positive abnormal returns in (0;+30) event window. Further, authors developed their ideas in subsequent papers (Asquith and Kim, 1982; Asquith, 1983). The scholars analysed the classic hypothesis of whether bidders experience value gains in the short-term period after the takeover announcement. The sample of public NYSE-listed

companies was analysed, provided that these firms were involved in M&A activities between 1962 and 1976. It was also important to study only companies with full stock price data. Thus the periods of 480 days before and 240 days after the announcement were selected. Asquith (1983) and Asquith and Kim (1982) estimated daily stock returns with the help of simple market model and compared them with the market index returns. It was finally concluded that announcement date resulted in almost zero reaction; the 2 days horizon allowed to testify insignificant +0.2% for the acquirers. Interestingly, authors also found that nearly all bidders suffered value losses in the longer post-merger periods (up to one month).

On the other hand, James and Wier (1987) demonstrated value gains for the bidders, when authors analysed mergers in the 1970s in the US. These positive findings for the acquirers were confirmed by Dubofsky and Fraser (1989). Further scholars also reported positive CARs for bidders: for instance Seidel (1995) studied sample of government-assisted mergers in 1989-1991. The findings for the targets are more clear, yet quite dispersed: from +1.18% in results by Frames and Lastrapes (1998) to nearly +33.6% in findings by Neely (1987).

More recent papers by Andrade et al. (2001) and Tuch and O'Sullivan (2007) were less optimistic and provided more unambiguous results: short-run value effects are on average negative for the bidder firms in the US. Bruner (2002) performed an extensive work by reviewing other studies that investigated short-term reactions to corporate events and concluded that nearly half of them (20 papers) testified wealth destruction for the bidders (13 of them - significant). On the other hands, 17 studies showed significant gains for the acquirers. These findings made the final conclusions considering the performance of bidders more complicated and confusing.

Quite a powerful stream of literature covers the short-term post-merger performance in the banking sector, which corresponds with the focus of this thesis. Most studies cover the United States and emphasise that mergers are on average wealth-destructing (Hannan and Wolken, 1989; Baradwaj et al., 1990; Cornett and Tehranian, 1992; Kane, 2000; Cornett et al., 2003; Gupta and Misra, 2007). Since 2000, several studies obtained findings that mergers that took place in the 1990s resulted in better stock performance for the bidders, than a decade earlier (Becher, 2000; Houston et al., 2001; Al-Sharkas and Hassan, 2010). The scholars explained their results with better access to the information, weaker information asymmetries and more precise market estimation of companies' value (Houston et al., 2001).

Thus the researchers continued to be sceptical in the 2000s considering the ability of the bidders to generate significant gains for their shareholders during M&A's. A plethora of studies obtained zero CARs for their samples of acquirers (DeLong, 2001; Cornett et al., 2003; Anderson et al. 2004; DeLong and DeYoung, 2007).

On the other hand, scholars were unanimous that target shareholders are able to increase their wealth in the short run after the takeover announcement, usually in the range between +10% and +15%. The only study by Toyne and Tripp (1998) testified significant losses for the targets. Other papers have also demonstrated positive CARs for the combined entities as well (Zhang, 1995; Becher, 2000; DeLong, 2001; Anderson et al., 2004; Becher and Campbell, 2005; DeLong and DeYoung, 2007; Al-Sharkas and Hassan, 2010) or no changes (Houston and Ryngaert, 1994; Pilloff, 1996).

The findings for the European banking sector, however, showed a different picture if compared to the US. While the target banks generated significant and positive CARs, bidders and combined entities suffered significant losses in the short run. One of the pioneers to study the European banking takeovers were Tourani-Rad and van Beek (1999), who demonstrated significant value gains for the European targets.

It would be crucial to analyse the cornerstone paper by Cybo-Ottone and Murgia (2000), who pioneered in the realm of the M&A-related studies on the European banking industry. Their sample included 72 mergers in 1988-1997. The estimation of abnormal returns has shown significant gains for both bidders (+4.5%) and targets (+16.6%). Furthermore, Resti and Siciliano (2001) studied one of the most intense national markets of banking takeovers in Europe – Italy. The authors have also obtained similar results that have shown significant positive value creation for both bidders and targets.

However, further findings were contradicting to the results obtained by Cybo-Ottone and Murgia (2000). Especially, the direct comparison of the US and the EU banking acquisitions exhibited the situation when European banks were outperforming their American competitors. In particular, DeLong (2003) demonstrated that although CARs are frequently not significant for the EU acquirers, the latter still perform better that the US financial counterparts. Scholtens and de Wit (2004) undertook a direct approach and performed a direct comparison between the

post-merger gains of the US and the EU banks. The results, however, contradicted previous studies, as authors failed to find significant gains for bidders from both markets. Furthermore, the American targets outperformed their European competitors significantly.

However, Goergen and Renneboog (2004) have found significant positive returns for the bidders (almost +4%) for their sample comprising EU banking mergers between 1988 and 1999. Furthermore, in other classic paper, Campa and Hernando (2006) studied 244 European bank takeovers in 1998-2002 and provided evidence to conclude that M&A banking mergers were value-increasing for the targets in the EU. Schmautzer (2006) has also shown that the wealth growth to for targets' shareholders outweighs the losses by acquirers bidders in the EU cross-border mergers.

Considering bidder banks separately, the findings show mixed results (similar to the US studies). Beitel et al. (2004) studied the sample that was constructed of the 98 European high-scale bank takeovers in 1985-2000 to determine the most important drivers of the value growth. On average, the results show that both bidder and targets manage to obtain positive and significant CARs around the announcement date. The authors also indicate that more than a half of the total deals in the sample were wealth-increasing. Interestingly, higher abnormal returns were detected in focused mergers, deals with less experienced acquirer and transactions with a target that demonstrated persistent poor stock performance. On the other hand, Fritsch et al. (2007) investigated financial mergers that occurred in 1990-2004. The authors testify insignificant and zero-approaching CARs for the bidders in the short-run period after the announcement date.

Several papers focused on the particular external factors that influence merger outcomes for the banks. In particular, Ekkayokkaya et al. (2009) attempted to study the impact of the introduction of the common currency (euro) on the post-merger performance. As was initially expected, the authors have shown significant and positive abnormal returns for the European bidders before the adoption of the euro in 1999. The transactions after 1999, however, failed to generate wealth for the bidders' shareholders. Ekkayokkaya et al. (2009) have also analysed the subsamples of Eurozone and non-Eurozone acquisitions. Surprisingly, it was found that the takeovers that involve Eurozone bidder, and non-Eurozone target demonstrate the higher value creation potential. The authors suggested that high abnormal returns can

be attributable to the geographical diversification which is obviously pursued by the banking institutions. Furthermore, scholars added, that the financial market became more competitive after the introduction of the euro.

Further studies did not bring clarity into the researched problem. For example, Lensink and Maslennikova (2008) have found significant CARs for both bidders and targets, analysing the sample of financial M&A's during the period of the most intensive merger activities between 1996 and 2004. Reported CARs were significant and varied from 0.2% to 0.4% in (-5;+5), (-10;+10) and (-20;+20) event windows respectively. On the other hand, Beltratti and Paladino (2013) became the first researchers who distinguished between announcement and completion dates in their investigation, reporting zero CARs on the announcement and significant positive returns on completion dates. Additionally, prior empirical studies did not use a large sample of bank mergers to measure shareholder wealth of combined firms. Other crisis-related papers by Asimakopoulos and Atanasoglou (2013) and Tsangarakis et al. (2013) also support the findings in the previous literature, documenting no wealth gains for the bidders' shareholders and positive and significant gains for the target shareholders.

In general, European target banks are almost always value-generating for their shareholders. Cybo-Ottone and Murgia (2000), Beitel et al. (2004) and Campa and Hernando (2004) confirm the presence of significant and positive abnormal returns in the short-term horizon. Furthermore, the calculated results for the mergers that occurred in the 2000s imply the increase of the targets' shareholders wealth by almost 10% on average. Similarly, almost all studies are unanimous that the CARs for the combined entities are significant and positive, meaning that bidders' losses are offset by the targets' gains. These findings were demonstrated in papers by Lepetit et al. (2004), Ismail and Davidson (2005), Lorenz et al. (2006) and Lensink and Maslennikova (2008). On the other hand, the results for the acquirers are pessimistic. Recent studies report either zero returns (Lepetit et al., 2004; Karceski et al., 2005; Asimakopoulos and Atanasoglou, 2013) or document significant value decrease as a result of M&A's (Campa and Hernando, 2004). The studies discussed above also failed to reach a consensus with the investigations of the US market, which usually testify significant losses of approximately -2% for the acquirer banks (Cornett et al., 2003; Anderson et al., 2004; DeLong and DeYoung, 2007). One of the core limitations that can be encountered in these papers is the exclusion of the

new EU members (countries that joined EU after 2004) from the analysis, as very few studies cover the period after 2004 – the largest expansion wave of the European Union.

The aspect of the banking M&A's in the emerging markets is highlighted in the literature quite scarcely. In particular, Soussa and Wheeler (2006) included the mergers between bidders from the developed countries and targets from the emerging markets into their analysis. Their findings point out that this type of takeover usually results in value destruction for the bidder. Authors have considered different subsamples in the various time periods. Interestingly, the Asian crisis of 1997-1998 did not result in negative CARs for the involved companies, whereas the post-crisis period brought significant wealth decrease for the bidders' shareholders. Evidently, market investors did not anticipate the materialisation of the synergy gains in terms of the post-crisis uncertainty. In another study, Crouzille et al. (2008) came to the identical conclusion for the combined entities. More recent investigations report significant positive abnormal returns for the targets (Goddard et al., 2012), but fail to bring the clarity into the issue of the bidders' gains. Authors admit that obtained CARs are close to zero (Ma et al., 2011). Further, Kolaric and Schiereck (2013) examined the returns of bank mergers and acquisitions in Latin America and found that these takeovers were successful for both involved counterparts on the announcement date and first several days after it (CARs are positive and significant).

2.4.1.2. Long-term market performance studies

The second part of the post-merger performance studies is concentrating on the long-run M&A effect detection, considering the reaction of the market investors to the takeover announcement or the dynamics of the accounting data ratios. Remarkably, the quantity of papers that investigate the long-term outcomes from mergers is much lower than short-term studies. The lack of information, the complexity of the analysis and a necessity to incorporate a plethora of external factors into the model make the research efforts difficult to implement (Barber and Lyon, 1997). Especially, the majority of difficulties emerge when the researcher needs to distinguish immediate impacts of mergers and other external (macroeconomic shocks, volatility) or internal factors (strategic, financial changes in the bank itself). Some authors argue that BHAR (buy-and-hold) methodology is more appropriate to reflect the experience of the investor in the long run, than

implementing CARs (cumulative abnormal returns. Smit (2005) has provided evidence that the results of the long-run post-merger analysis are subject to a high range of variation in the obtained abnormal returns. Earlier, Andrade e. al. (2001) admitted that CARs and BHARs in the three-year horizon are very difficult to be decomposed into the initial effect of the merger itself and the effect of another firm- or industry-related factors. The authors have also indicated that new information (corporate events as annual reports, restructurings, other corporate events) and cyclical merger nature (serial bidding) are often influencing the stock prices behaviour, making it almost impossible to separate the effect of a particular announcement. Furthermore, Smit (2005) has also mentioned, that the scenario when the majority of the firms in the industry are involved in M&A activities makes the results of the event study analysis less valuable. Nevertheless, Smit and Ward (2007) emphasise in their further study, that although long-run investigations are subject to some methodological and practical difficulties, it is still important to determine the persistent outcomes of the acquisitions, as the majority of synergy gains are materialised in the longer periods of time.

The first attempts to determine long-term effects from mergers were undertaken in the 1970s. One of the pioneers, Mandelker (1974) has investigated the long-term abnormal returns for the firms involved in M&A's. He employed the two-factor risk-adjusted market model. The findings were consistent with the market efficiency hypothesis, showing that information on the anticipated merger was captured by the investors prior to the announcement. Remarkably, the abnormal returns for the bidders were similar to the abnormal returns from any other investment-related activity and were insignificant and close to zero. On the other hand, Mandelker (1974) has found that targets increase their value by almost +14% on average in the horizon of seven months after the announcement date.

Further, Langetieg (1978) attempted to implement the classic three-factor model, first mentioned in Fama (1969). The author aimed to test whether merging firms are able to increase their value in the long run. Thus Langetieg (1978) collected the US takeovers that were finalised in 1929-1969 and testified that abnormal returns for the bidders were insignificant indistinguishable from zero.

Similarly, the paper by Jensen and Ruback (1983) has demonstrated nearly identical findings. The authors came to the conclusion that targets manage to obtain

gains of almost +4.0%, whereas bidders' CARs are close to zero and insignificant (for the sample of successful and finalised mergers).

Malatesta (1983) has also attempted to estimate the long-run results for the bidders and targets (in both aspects of accounting data and the shareholders' wealth). The author analysed the sample of 256 merger deals that occurred during the period between 1969 and 1974 in the US. Identically to the previous studies, cumulative abnormal returns were estimated according to the market-based approach. It was revealed that acquirers' shareholders suffered significant, but small wealth destruction (around -2%). Furthermore, target firms did not show any positive value changes as well, in contrast to the past evidence. The authors explained that their results could be explained by the inclusion of the small firms into the sample and variations in the selected stock price benchmark specification.

Singh and Montgomery (1987) have been first who addressed the issues of merger relatedness in the long-run perspective. They tested the hypothesis that focused acquisitions result in higher gains for the bidders than unrelated deals. Finally, it was confirmed, indicating that mergers between companies in the same industry create more powerful synergy effects in the future, and the latter are anticipated by the market investors.

Another cornerstone study by Harris and Ravenscraft (1991) tested the identical hypothesis with a much larger sample of 1273 US-based takeovers that took place between 1970 and 1987. The researchers revealed three key findings. Firstly, it was found that cross-border deals are more numerous than domestic mergers; what is more interesting, almost 75% of the cross-border mergers are among firms in the same industry. Secondly, foreign targets manage to obtain higher abnormal returns than the US acquired firms. Thirdly, the observation that cross-border mergers outperform domestic transaction was attributed to the weak US dollar, simultaneously admitting an important role of currency exchange risk in the long-term post-merger outcomes. Franks et al. (1991) followed the same framework of the market reaction assessment. The authors have analysed 399 American acquisitions between 1975 and 1984 and contradicted to the previous findings. Franks et al. (1991) emphasised that the results of the poor performance of the acquirers was likely to be discovered due to the methodology inconsistencies and benchmark errors.

Further studies attempted to bring clarity to the issue of merger-related value creation in the long run. In particular, Agrawal et al. (1992) expanded the sample to the period of 1955-1987 and estimated the long-term market performance of the involved companies, adjusting for the size and risk. The scholars confirmed that acquirers suffer significant value losses of almost 10% during the nearest 5 years after the deal completion. The authors also confirmed the presence of the efficient-market anomaly which was first found by Jensen and Ruback (1983).

Andrade et al. (2001) and Mushidzhi and Ward (2004) continued to study the set of various deal-related aspects of the acquisitions (payment type, industry relatedness, listed status, etc.), estimating the average abnormal return (AAR) in the long run. Although the methodologies in these two papers slightly differed, the results in both papers have shown that the average outcomes for the bidders' shareholders are zero changes in their wealth. Several shorter event windows (1-2 months after the announcement) resulted in insignificant value losses (-3.8%), but returns converged to the zero value in longer event windows (up to 12 months).

Finally, it would be fair to conclude that bidders do not experience significant wealth gains in the long-run if the market-oriented approach is implemented (Bruner, 2002). Frequently the wealth decrease is detected. Abnormal returns usually vary from -4% in the results of Rau and Vermaelen, (1998), who analysed 3968 takeovers in 1980-1991 and considered the periods not more than 3 years after the announcement, to -14.3% in Loughran and Vijh (1997), who investigated post-merger effects for 434 acquisitions in 1970-1989 with a maximum 4-year event window period.

Remarkably, more recent studies were unanimous concerning the negative long-run performance of acquirers and the combined entities. Particularly, Alexandridis et al. (2006) utilised the classic model by Fama and French (1993). The results showed significant negative CARs of approximately -1%. Recent papers by Kyei (2008) and Laabs and Schiereck (2010) limited themselves to only 14 and 164 mergers in the samples respectively. Both papers utilised standard 3-year event window and applied both BHAR (buy-and-hold returns) and CAR (cumulative abnormal returns) approaches. The authors reported average CARs of +1.4% and BHAR of -16.6% on the 378th day after the announcement. Kyei (2008) expressed an opinion that "...short-term measurements of abnormal performance do not capture the full effects of the market reaction to an event" and that "...market participants

systematically tend to react sluggishly to corporate financial and strategic decisions". These findings are very important in the context of M&A research, as they reject the efficient markets hypothesis which is the cornerstone of the event studies (Kyei, 2008).

Considering the studies that concentrate on the particular industry (banking sector, specifically), the papers investigating long-run BHARs for the European banking sector are very few, opening prospects for further research. In one of the first papers on the long-term post-merger outcomes in the European banking sector, Agrawal et al. (1992) points out, that the bidders experience a decrease in value of almost 10% during 3 and 5 years after the announcement, which is comparable to the results of scholars researching US merger environment. The other papers by Loughran and Vijh (1997) and Rau and Vermaelen (1998) authors confirm the above-mentioned results. It is crucial to outline, that in contrast to short-term event studies, long-run effects for merging firms in the European market are coherent with results describing US market.

Specifically, one of the milestone studies investigating long-run returns for the European banking mergers is Conn et al. (2001), who considered the sample of the UK-based M&A's. The authors attempted to focus on the 36-month event window and to test the results using standard t-statistics and produced evidence on significant negative gains for the bidder shareholders. Gregory and McCorriston (2005) have reported results consistent with finding, that mergers decrease bidder's value in the long-run: acquirers suffer losses of -9.36% and -27% returns averagely in 3-year and 5-year periods respectively. The findings provided by Sudarsanam and Mahate (2003; 2006) are consistent with the above-mentioned studies, confirming the fact that mergers ruin shareholders' value of the acquirers in the long run. The main limitation of the aforementioned studies is the absence of variables that reflect the effect of macroeconomic environment and corporate governance. The majority of studies also limit samples with large deals, which makes impossible to analyse mergers among small banks (less than USD 100 million). The most recent study by Kyriazopoulos and Drymbetas (2014) investigates the long-term post-merger effects for the European banking mergers in the 2-year horizon. The authors found out the existence of negative long-term returns, totally in line with the existing literature. Surprisingly, the long-term stock price behaviour of cross-border M&A's is

distinctively different: the returns are significantly positive for bidder banks and, on average, are almost 8% in the 2-year post-merger time horizon.

2.4.2. Operating performance and efficiency studies

The majority of existing research on post-merger performance is focused on using market data on stock prices as an external reflection of the merger success or failure. However, first attempts to exceed the boundaries of market-based studies faced several difficulties. First, accounting information that could be used as a proxy for assessment might be subject to managerial manipulations and various accounting policies (different international standards were enhancing the effect)(Stanton, 1987). An additional difficulty arises when researchers are trying to detect impacts for the target companies, as they cease to exist or become a subsidiary of the bidder (Powell and Stark, 2005). Nevertheless, a massive number of studies were produced in order to measure outcomes of the merger for the involved companies, arguing that any benefits or losses emerging after the takeover will be reflected in the accounting data of the acquirer, provided that the asset transfer occurs at the completion date.

Two key techniques are widely used in the literature on the M&A consolidation in the banking industry. The first approach focuses on the pure changes of the accounting ratios (studying operating performance), while the second approach studies changes in the cost/profit efficiencies. Normally, the researchers only apply one of the two frameworks, and only a handful of papers aim to undertake complex attitude and to incorporate both of them to establish a full picture of post-merger changes.

2.4.2.1. Accounting data studies.

The approach used to evaluate the effect of the merger on firm performance has been the examination of the operating performance change due to the merger. A number of studies examined performance improvements due to M&A activities and used various accounting ratios to analyse profitability and cost ratio changes. It is worth outlining, the majority of the studies utilised the two popular ratios: return on equity (ROE) and return on assets (ROA). The early evidence from studies that considered accounting ratios had reached a consensus that merger did not improve operating performance.

Several papers as Singh (1971), Utton (1974), Meeks (1977) and Kumar (1984) provided evidence for UK mergers that the majority of the takeovers experienced a

decline in profitability after the merger. An exception was Cosh et al. (1980) who found a weak increase in profitability. Other studies that reported a decrease in profitability included Peer (1980) for mergers in Netherlands, Ryden and Edberg (1980) for takeovers in Sweden. Other studies reported no statistically significant change in profitability for mergers in Germany (Cable et al., 1980), France (Jenny and Weber, 1980) and Belgium (Kumps and Wtterwulghe, 1980). Several later studies were in line with previous findings; in particular, Kwan and Eisenbeis (1999) testify a significant decrease in ROE in the period after the merger completion.

The substantial array of literature is dedicated to the post-merger effects for the operating performance of the banking institutions. The findings of the studies covering US banking M&A's were in line with the studies of non-banking mergers. The majority of the papers reached a conclusion of no improvement in profitability for various samples, time periods, and geographic locations (Rhoades, 1986; Linder and Crane, 1992; Berger and Humphrey, 1992; Pilloff, 1996; Akhavein et al., 1997; Chamberlain, 1998).

On the other hand, the evidence of profitability improvement was found by several studies in the USA (Cornett and Tehranian, 1992; Spindt and Tarhan, 1992) and in the EU (Vander Vennet 1996; 1999). Spindt and Tarhan (1992) reported improvement in ROE but not in ROA.

The contrasting findings of these studies could be explained by various sample size, location and time period or even by methodological shortcomings. On the other hand, the studies that utilise accounting data are frequently suffering from the weak ability to capture the profitability of the analysed firms (Fisher and McGowan, 1983). Furthermore, some substantial distortions connected with the treatment of the merger completion and announcement can also play their role in the non-robustness of the final results (Chatterjee and Meeks, 1996). Logically, other researchers aimed to take other approaches in their studies (e.g. cash flow measures).

Some further papers tried to utilise ratios other than classic ROA and ROE to study the changes in the operating performance. For instance, Healy et al. (1992) used the adjusted operating cash flow return on the firms' market value for 50 US mergers in 1979-1984. The authors have shown that merging companies improve their cash flow significantly in the 5-year horizon after the takeover.

Other studies concentrated on changes in the bank expenses and implemented non-interest expenses as a benchmark to test performance: The general conclusion

for USA bank mergers is that cost ratios do not show any improvements after merger (e. g. Rhoades, 1986; Rhoades, 1990; Berger and Humphrey, 1992; Spindt and Tarhan, 1992; Cornett and Tehranian, 1992; Peristiani, 1993) or demonstrate slight improvements (Boyd and Graham, 1998)). Meanwhile, 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, and Pilloff (1996) for the expenses-to-assets ratio. However, Kwan and Eisenbeis (1999) found that the above-mentioned ratio was the only one that improved after the acquisition.

Later studies express the same degree of scepticism concerning operating performance gains after the takeover. There is no evidence of improvement in the performance in the studies focusing on measuring ROA (Houston et al., 2001; DeLong, 2003; Zollo and Singh, 2004) or ROE (Akhavein et al., 1997). On the other hand, performance gains are reported only by a handful of papers (Cornett et al., 2006; Knapp et al., 2006). More recent studies present a more optimistic picture of the post-acquisitions effects for the banks involved into M&As. Illustratively, Cornett et al. (2006) and Knapp et al. (2006) examined banking M&A's in the US and reported a significant increase in efficiency for the large-scale and domestic deals. These findings are in line with Berger et al., (2001) who admitted that the profit efficiency is directly linked to the geographic expansion. However, the study by DeLong and DeYoung (2007) conclude that banking mergers are performance-neutral in the accounting data framework.

Remarkably, the findings for the European banking mergers provide a different picture if compared with the US market. Generally, researchers demonstrate improvement in the personnel expenses to assets ratio (Vander Vennet, 1996) and in the cost-to-income ratio (Vander Vennet, 1999) for the mergers of comparable-sized banks. Besides that, Vander Vennet (1996) admits that European M&A's between similar-sized banks on average result in substantial positive changes in performance. Interestingly, the majority of other studies focusing on Europe concentrate on Germany. In the historical perspective, no performance changes were detected in the 1970s and earlier (Gold, 1997). Haun (1996) reported a slight decrease in the post-merger performance in the 1980s, whereas Baxmann (1995) documented mixed and inconclusive findings for the early 1990s. Later studies did not manage to clarify the controversy: Kondova et al., (2007) also obtained mixed findings. The authors

testified that takeovers in 1993-1998 were unproductive, while deals that occurred in 1999-2004 brought improvements to the operating performance ratios. Auerbach (2009) implemented the same approach in his grand-scale study of the German market. The scholar considered 1682 bank mergers and revealed that the peak values of ROA and ROE are reached during the 3rd and 4th years after the merger completion. Only several papers covered the efficiency of the banking mergers in individual countries other than Germany. For instance, Spanish market of banking M&A's was studied by Carbo Valverde et al. (2003), who found that deregulation was a positive factor, but the most powerful benefit-bringing factor was improved economic conditions. Humphrey and Vale (2004) reported a 2% growth in profitability for the Norwegian M&A's. Pannetta et al. (2005) identified operational improvements among Italian banks after the takeovers (screening and compliance). They have also testified that the risk management system has also undergone positive alterations.

Following the research line of Vander Vennet (1996; 1999) studies investigating the operating performance in the European financial sector in 1997-2002 (see, for instance, Altunbas and Ibanez, 2004; Pasiouras et al., 2007) analysed the role of the pre-merger factors in the post-merger outcomes and corporate performance and came to the conclusion that European banking mergers slightly improve the key profitability ratios. Altunbas and Ibanez (2004) reported significant improvement in ROE for cross-border and domestic takeovers of +2.44% and +1.22% respectively. Interestingly, the authors argued that differences in credit risk, growth strategies and loans structure resulted in negative effects on post-acquisition profits. On the other hand, the analysis of the cross-border deals showed opposite tendency: larger differences resulted in higher gains. Pasiouras et al. (2007) applied the similar approach and tried to determine the reasons for the performance changes in the future for merging banks. The researchers concluded that targets were less profitable and bidders showed higher growth perspectives and higher profitability. Both targets and acquirers shared the characteristics of large size, low-cost efficiency and undercapitalised conditions.

These findings are in line with further studies by Figueira and Nellis (2009) and Beccalli and Frantz (2009) who documented positive changes in cost- and profit-related ratios of the banking institutions in the post-takeover period.

Concluding, it can be hypothesised, that the discrepancies between the findings for the market of the US and the EU can be explained by the higher potential to achieve scale economies for larger banks in Europe. This factor, in turn, can be caused by less tight competition. Moreover, lower number of the restrictions in the 1990s might have been a powerful driver for the M&A activities and further optimisation.

Following the critique of the accounting ratios by some scholars, who consider them unable to capture the changes in the operating performance adequately, it would be logical to outline the studies which undertook different path in determining post-merger performance gains (or losses). Their key argument is based on the assumption, that the accounting-based studies do not distinguish between market power and internal efficiency changes (Berger et al., 1999). Below the brief overview of the cost and profit efficiency studies (X-efficiency approach) is provided.

2.4.2.2. Efficiency studies.

Measurement of the cost/profit efficiency effects of M&A's has been another important issue in the literature on M&A's. The initial data for the banking institutions imply that cost efficiency improvement can be primarily reached by the reduction of competition. DeYoung (1993) concluded that average inefficiencies (mainly X-inefficiencies and managerial inefficiency) reached 20%. Thus, the goal of the is to establish how close each analysed firm is to the "ideal", "fully efficient" benchmark, or to the best firm in the collected dataset. It is also assumed that the input prices, scale effects and other external factors are kept constant. Interestingly, DeYoung (1993) mentions that efficiency growth is more probable in the cases where both bidder and target were relatively inefficient prior to the acquisition.

The efficient frontier methodology is widely utilised in these papers. Similar to the studies on the changes in accounting ratios, the researchers provide evidence that rejects any substantial positive improvements after the mergers in the US (Berger and Humphrey, 1992; Rhoades, 1993; DeYoung, 1997; Peristiani, 1997). Recalling the hubris theory of Roll (1986), it would be fair to conclude that future synergies are often exaggerated by managers. Additionally, agency theory is also applicable: the pursuit of personal benefits and reputation gains drives ineffective M&A' (Shleifer and Vishny, 1989; Morck et al., 1990).

On the other hand, the studies covering the period of 1990s show mixed results. For instance, Rhoades (1998) argued that small but significant positive changes are present (approximately +2.5%). Similarly, Berger (1998) demonstrated improvements in the X-efficiency for both subsamples of large, medium-sized and small banking acquisitions. Surprisingly, some other papers found large improvement opportunities in aspects of costs and profits (Berger and Mester 1997; Berger et al., 2001). In particular, Berger and Mester (1997) testified that the best banks in their sample managed to achieve almost 55% of the benchmark profit efficiency. Shaffer (1993) pursued the same goal to measure potential changes in efficiency. The author constructed the sample of 20000 hypothetical acquisitions and concluded that smaller banks have the larger potential to optimise costs. Further, DeYoung (1997) emphasised that government-initiated takeovers of banks (or, alternatively called "bailouts") can result in large efficiency gains. In line with the above-mentioned studies, Peristiani (1997) and Fried et al., (1999) argued that positive changes in efficiency can be reached only if the bidder is more efficient than the target prior to the transaction. Akhavein et al. (1997) asserted that the improvements in cost/profit efficiencies can be mainly explained by the ability to increase the returns of loans at the expense of the investment instruments.

Unlike to the previous findings on the operating performance studies, European banking sector demonstrated similar, if not identical, results. It is important to mention that the studies on the post-merger efficiency changes are often covering national markets of a particular country, rather than working within the scope of EU as a whole.

Altunbas and Molyneux (1996) and Altunbas et al. (2001) have found that scope and scale economies are proven phenomena for the European banking sector, thus motivating banks to engage into M&A's. Similarly to the conclusions by Shaffer (1993) for the US market, Altunbas et al. (2001) argue that potential improvements are larger for the smaller banks. However, empirical findings by Focarelli et al. (2001a) and Casu and Girardone (2002) have found cost and profit efficiency decrease for combined entities in Italy, while Rime and Stiroh (2003) present similar findings for Switzerland. Further, Focarelli et al. (2002) revisited the issue of the Italian banking mergers to examine bank mergers and acquisitions in 1984-1996. Remarkably, this study uniquely considers mergers and acquisitions as separate corporate events and demonstrates different motives, at least in the Italian market.

The mergers are usually driven by the potential growth of customer base and increase in the market power, whereas acquisitions are performed in order to increase the value of the combined entity and benefit from positive financial consequences (larger volume of possible debt, easier access to the capital markets, etc.)(Focarelli et al., 2002).

The studies analysing banking mergers in Germany provide various results that largely depend on the investigated subsamples. For instance, Lang and Welzel (1996; 1998) documented significant cost efficiency gains among small universal banking institutions, but were unable to confirm their finding in the case of cooperative banks (Lang and Welzel, 1999). Nevertheless, several years later Wutz (2002) managed to confirm the initial findings: gains were small but yet significant. The picture is similarly mixed for the sample of savings banks, as was demonstrated by Bresler (2007) and Radomski (2008), who did not succeed in their attempts to find evidence in favour of profit and cost improvements. However, different results were presented by Koetter (2008) who studied 1500 banking M&A deals in 1993-2005 and concluded that more than a half of all German mergers managed to improve costs or profit efficiencies. Overall, the discussed findings testify that European banks are successful in optimising costs and profits only in case of cross-border and diversifying acquisitions, which differs to the US banking M&A's, which result in zero effects at best.

Similarly, investigations of the other European national markets provide mixed findings. Bernad et al., (2010) showed that the aggregate post-merger cost-related effect of Spanish banks is unclear. The Greek banking mergers demonstrate negative changes after the takeover (Rezitis, 2008). Pasiouras and Zopounidis (2008) also focused on Greece and did not find evidence supporting the profit-improving nature of banking mergers.

Some of the studies provide more optimistic findings. For instance, Al-Sharkas et al. (2008) argue that the US banks are more likely to obtain both profit- and cost-efficiencies after the acquisition. The studies on the mergers in the European banking sector have proven empirically, that banking mergers are able to optimise costs and profits of the involved banking institutions (Diaz et al., 2004; Altunbas and Ibanez, 2008; Beccalli and Frantz, 2009). Further, Chronopoulos et al. (2011; 2013) conducted tests examining changes in profit efficiencies for the European merging

banks and concluded that they are in a direct relationship with the deal value and size of the involved institutions.

Another small but distinctive stream of literature, primarily presented by Dong et al. (2006), Rhodes-Kropf et al. (2005) and Ang and Cheng (2006) propagates the point of view, that normally the deterioration of the long-term post-merger performance is mainly explained by the market correction, instead of widely used hypothesis of internal reasons. This assumption allows concluding that all studies that examine the economic outcomes of the M&A's are biased, as they are implicitly based on the presupposition that stock prices always reflect the fundamental value of the firm. In particular, Ma et al. (2011) challenged the widespread event study approach and emphasised the fact, that market investors are prone to pre-merger overvaluation and post-merger undervaluation. These behaviour patterns, in turn, distort the true, or "intrinsic" firm value.

Thus the above-mentioned researchers proposed an alternative methodology to assess the economic impact of the M&A's – residual income model, which is based on the estimation of the cost of equity (Ma et al., 2011). This model was first introduced by Ohlson (1995) and largely extended by Lee et al. (1999). Using this toolset, Ma et al. (2009) examined 1077 takeovers in 1978-2002 and attempted to assess raw and industry-adjusted intrinsic value of the acquirers. The estimation period began from the point of "+2 months" after the merger announcement, in order to capture the deal completion delays. The authors revealed insignificant discrepancies with the classic event study approach.

In of the other papers, Guest et al. (2010) studied 303 bidder companies that were involved in M&A activities in 1985-1996. The authors applied the residual income model and compared obtained results with the estimations from conventional event study method (both short- and long-run horizons). It was revealed that the increase of the intrinsic company value was positive but insignificant, measured 3 years after the deal completion. This result is in contrast with the market-based studies, which usually document negative effect for the acquirers, and with accounting-based studies, which usually report significant and positive effects (Guest et al., 2010). The authors concluded that the findings on the aggregate post-merger effects are still mixed and inconclusive, as changing the focus of company value analysis to equity through residual income model does not introduce substantial improvements.

Finalising, it is important to mention that current literature on the efficiency effects banking M&A's is far from being sufficient. The above-mentioned papers suffer from a set of substantial shortcomings that undermine the obtained collective evidence. Firstly, the majority of the studies concentrated on the specific national markets (Carbo Valverde et al., 2003; Humphrey & Vale, 2004; Pannetta et al., 2005; Pasiouras and Gaganis, 2006; Pasiouras & Zopounidis, 2008) and did not perform the analysis of the EU mergers in aggregate. Secondly, the few of them that used the sample covering the whole European Union did not examine the ex-post operating performance of the banks. Thirdly, the studies lack the adjustment for industry performance (Altunbas and Ibanez, 2004). Finally, there are very few studies that combine efficiency approach with operating performance measurements.

Overall, several other indications should be made as final remarks on the relevant M&A literature. Firstly, the theoretical research on motives and reasons of mergers has almost stalled since late 1980s and early 1990s. As long as the markets of the EU and the US are well-studied, the researchers lacked the variety of new ideas, having reached relative consent on the key motives and outcomes for the performed acquisitions under conditions of limited methodology. Secondly, both stock-market-based and efficiency-related streams of studies were only temporarily reactivated directly after the financial crisis, covering its immediate consequences for the banking M&A (Weitbrecht, 2010; Ng et al., 2010; Saqib et al., 2013; Asimakopoulos and Athanasoglou, 2013; Beltratti and Paladino, 2013). Furthermore, the focus of the studies moved to narrow regional and industry-wide aspects of mergers predominantly in the developing countries with understudied processes of mergers and acquisitions.

3. Methodologies

This section presents research methodologies that are implemented in the existing literature covering the M&A's in the banking sector. The utilised methodologies are divided into several broad areas that cover market-based approach (short-run and long-run event studies), accounting data approach (direct comparison of the accounting ratios, efficiency frontier analysis (DEA, SFA), residual income valuation). Additionally, several studies also investigate the probabilities of the particular bank to be involved in merger (as target or bidder).

3.1. Assessing post-merger market-based performance

3.1.1. Short-term event study

The methodological cornerstone of the market-based assessment of M&A's is the event study approach. It is generally applied to calculate abnormal returns around a particular date (announcement date or effective date/completion date), cumulate these returns for event windows to obtain cumulative abnormal returns (CARs) and measure the market reaction to this particular event. In other words, the primary aim of the event study methodology is to estimate the extent to which stock prices behaviour around the announcement date deviate from expectations (market-related benchmark) (Sudarsanam, 2003). This deviation is usually referred to as "abnormal return". The procedure of abnormal returns calculation is based on the efficient market hypothesis (EMH) (Fama, 1970)[1].

The semi-strong form of EMH postulates that all publicly available information is fully reflected in the prices. Thus, if the market as a whole is rational and efficient, the changes in stock prices will reflect the changes in the company value, allowing the researcher to estimate the impact of the merger event (Solibakke, 2002). However, stock prices often do not adjust immediately, requiring the researcher to study different time horizons (time windows). Additionally, Sudarsanam (2003) expresses an opinion that stock prices are able to capture all available and relevant information about the company, making unnecessary to study accounting data in order to reveal post-merger effects.

[1] An efficient market is defined as a market where all available information is fully reflected in the stock prices. The efficiency in this context is informational efficiency. Fama (1970) distinguishes three forms of informational efficiency: (1) weak form, where prices fully reflect information concerning the past behaviour of prices; (2) semi-strong-form, where prices reflect only information that is public, such as announcement of financial statements data, and (3) strong form efficiency, where prices reflect all existing information, including insider information.

The history of the event study methodology dates back to the early 1930s. The pioneer of the event study research was Dolley (1933) who attempted to perform a research of the stock splits, which can be considered as first paper using event study methodology (MacKinlay, 1997). The sophistication level in the studies grew gradually increased up to the late 1960s, when two extremely important studies by Ball and Brown (1968) and Fama et al. (1969) were published and defined the generally agreed methodology to investigate the market response to the particular event. Among other influential papers were studies by Brown and Warner (1980, 1985), who proposed to gather data sample on the daily and monthly basis.

The method to calculate the expected return for particular companies is argued in the existing literature. A widely accepted framework that allows detecting abnormal returns is based on the CAPM, the model that assesses expected returns are relying on the risk premiums and the market portfolio (Sharpe, 1964; Lintner, 1965). However, more advanced techniques (Brown and Warner, 1980; Dodd and Warner, 1983) that are robust against autocorrelation and variance changes in daily data are used more frequently (Brown and Warner, 1985).

Since the study by Brown and Warner (1985) was published, it is a widespread practice to assess cumulative abnormal returns (CARs) in the short-run M&A-related event studies. The formula for CARs relies on the link between the stock prices of a particular firm and the stock market index.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \qquad (2)$$

where R_{it} and R_{mt} - returns in period *t* of stock *i* and of the market *m*, respectively, ε_{it} - zero-mean disturbance term, which is usually referred to as the abnormal return. Further, Ordinary Least Squares (OLS) regression is applied to estimate the intercept α_i and slope β_i for each stock *i* for the corresponding estimation period. They are referred to as $\hat{\alpha}_i$ and $\hat{\beta}_i$.

Expected returns are calculated as follows:

$$E(\hat{R}_{it}) = \hat{\alpha}_i + \hat{\beta}_i R_{mt} \qquad (3)$$

It is important to mention the assumptions that should be held for the OLS regression model:

- the residuals are normally distributed with a mean of 0;
- the residuals are not correlated with the explanatory variable (market return);
- the variance of the residuals is constant (no heteroscedasticity);
- serial covariance of the residuals across time is 0 (no autocorrelation).

Several comments to the above-mentioned characteristics of residuals should be provided. Firstly, the residuals are distributed more closely to the normal distribution than daily returns (Brown and Warner, 1985). The remaining residuals' non-normality can be ignored in event studies (Henderson, 1990).

Secondly, a problem can emerge when residuals are correlated with the market index returns. It can occur during upward phases of the economic cycles (at "bull markets")(Pojezny, 2006). In general, the researcher can obtain biased and inconsistent results if the estimation of expected returns is performed using a structurally and fundamentally different period (Henderson, 1990).

Thirdly, standard Goldfeld-Quandt test is applied to test the obtained returns for the heteroskedasticity (von Auer, 2003). Generally, heteroskedastic estimators are inefficient, but yet consistent. An agreed method to tackle heteroskedasticity is to implement Generalised Least Squares (GLS) technique instead of OLS (von Auer, 2003).

Fourthly, a standard Durbin-Watson Test is applied to test for autocorrelation. Again, autocorrelation implies inefficient, but yet consistent estimators. Usually, Generalised Least Squares (GLS) method by Cochrane-Orcutt is implemented. However, as several researchers point out, implementing autocorrelation and heteroskedasticity adjustments do not bring important improvements to the obtained abnormal returns and significance levels, and the adjustments can be neglected (Pojezny, 2006).

Another suggested adjustment that was previously addressed in the existing literature is an adjustment for the non-synchronous trading (or a usage of the intertemporal arbitrage). However, the problem emerges when transactions are not occurring at the same time, but can arise at time intervals of irregular length. As a result, the presence of synchronous trading can possibly cause the model beta to be biased downwards. However, several influential studies (Brown & Warner, 1985; Jain, 1986) argue that the subsequent beta correction does not have a significant impact on the initial results. MacKinlay (1997) suggests ignoring the problem of

non-synchronous trading, as the difference between the distributions (OLS betas and corrected betas) is negligible.

It is a widely agreed practice to utilise the market indexes that are the most closely related to the analysed stock prices (Coutts et al., 1994). The most advanced approach assumes that researchers should capture the regional differences and account for country-specific risk profiles. Most frequently, share prices are compared with the market index: it could be key stock exchange composite index of the country where acquirer is based or Datastream General Market index (or Datastream Bank Sector index as an alternative).

Finally, abnormal returns for the stock *i* are normally expressed as difference between the expected stock return and the observed stock return:

$$AR_{it} = \hat{R}_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt}) = R_{it} - E(R_{it}) \quad (4)$$

Further, cumulative abnormal returns (CAR) can be calculated in the following manner:

$$CAR_i = \sum_{t=-n}^{i=m} AR_{it} = \sum_{t=-n}^{i=m} R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt} \quad (5)$$

Where R_{it} - simple return of a firm, $E(R_{it})$ - expected return for a firm, and $AR_{it} = R_{it} - E(R_{it})$ - abnormal return for a time period *t*. Cumulating across *T* periods yields a CAR (Brown and Warner, 1985). Finally, CARs are aggregated over the sample firms and divided by their number *n* to obtain the cumulative average abnormal returns (CAAR) of the group:

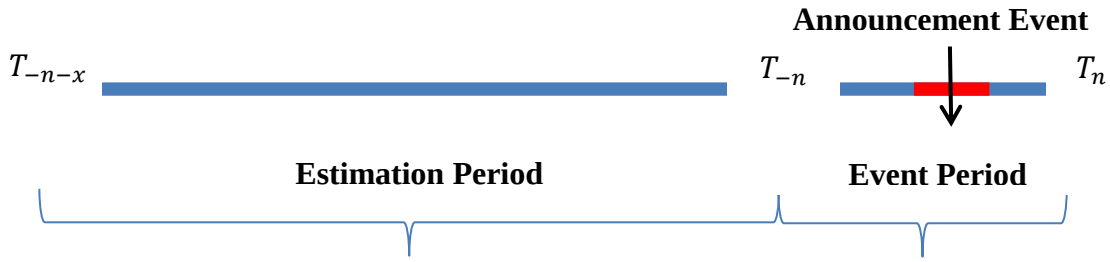
$$CAAR_i = \frac{1}{n} \sum_{t=-n}^{i=m} CAR_i \quad (6)$$

The implementation of the event study framework in practice includes several important aspects that should be described in more details. The first phase of performing an event study is to determine the event clearly, which can be either takeover announcement or takeover completion. According to the classic methodological framework, the key event date is considered to be the date of the public acquisition announcement. However, other researchers can extend their

interest to the completion date as an event of interest (effective date)(Beltratti and Paladino, 2013).

Figure 1 illustrates a summary overview of the standard event study when studying effects on the companies involved in M&A activities.

Figure 1. Estimation Period and Event Window



Another important issue is the selection of an estimation period to define the "normal stock behaviour". It is usually selected for a period of 50 and 240 days before beginning of the event period and should not comprise any other events that can distort the initial stock price behaviour (Campbell et al., 1997). The estimation period can vary from 120 days to 210 days, which is adopted in plenty of studies (Temming, 2014; Pundert, 2013; and Simões et al., 2010). Several researchers suggest using larger estimation windows, but the results are not significantly better (MacKinlay, 1997). However, there is no clear rule or justification regarding the issue of how long should be the estimation period to be included in the analysis; the interval should be wide enough to capture the link between the particular stock and the market.

Then, event windows are selected, covering the examined period around the selected event date. Thus, short-term effects of the event of interest are captured and examined. The focal point of the event period is usually the announcement date, which usually plays the role of the "zero day" of the event time. However, some researchers implement asymmetric event windows to track information expansion over the market in different phases of the merger event (Campa and Hernando, 2006). Frequently, the scholars utilise the event windows that are wider than the analysed date (event date). It gives an opportunity for more precise examination of surrounding time periods, allowing market imperfections to decrease their influence on the obtained results (MacKinlay, 1997). The only issue that can cause discrepancies among scholars and puzzles the researchers is the choice of appropriate length of the event window. For instance, Beverley (2008) argues that choice of

event window length is arbitrary and that no valid and widely-recognized theoretical justification exists. Tuch and Sullivan (2007) claim, that shorter event windows are preferable, providing less noise in the data. However, some researchers point out, that the length of the event window can be interpreted as a measure of the speed, with the help of which market is incorporating new information about the merger events (Krivin et al., 2003). Furthermore, Mitchell & Netter (1989) argue that the implementation of only short event windows is justified if and only if the assumption of the efficient markets is held. However, the latest research concludes that only financial markets in Germany, the UK, Sweden and Ireland comply with a weak form of efficiency (Worthington and Higgs, 2004). The financial markets of the other EU members (since 2004) cannot be considered efficient even in its weak form (*ibid*). The comparability factor is also important among scholars, ensuring that results from identical event windows can be matched with each other.

Secondly, researchers agree that determining merger date can be convincing in theory, but the process of news dissemination across the market can be less obvious in practice. The date of actual merger date can be different from one reported and even not discrete in time. Modern financial mergers are highly complicated phenomena comprising phases of legislative consultations, due diligence and other corporate procedures taking months to be finalised. Although the whole process is kept undisclosed, there is a substantial probability that some information will infiltrate the market in the form of rumours and influence the market reaction to the merger. Following Jayaraman et al. (2001), who investigated the level of trading activity for companies that were rumoured to be involved in M&A processes, there is strong evidence that significant increase in trading activity is observable in periods preceding merger announcement dates. The authors also admit that trading volumes and abnormal returns of selected companies are correlated with the illegal insider activities. Furthermore, Jayaraman et al. (2001) indicate, that their investigation on the reasons for pre-merger upward trend for the target company stock has provided clear evidence, that above-mentioned stock “run-ups” cannot be fully explained by only publicly available information, as they were occurring even before the first public disclosure.

Importantly, several technical problems, that can be encountered while implementing event study methodology, should be discussed. Primarily, it is important to account for “confounding events” when estimating abnormal returns.

These events include restructurings, dividend payments (Morck and Yeung, 1992), earnings announcements (Brown and Warner, 1985), stock splits, legal claims, executive changes (Cannella and Hambrick, 1993), joint venture announcements (McConnell and Nantell, 1985). In other words, it is quite complicated to isolate the particular merger announcement from other events that can influence the changes in the stock prices. Therefore, longer event windows are more exposed to distortions in the abnormal returns derived from the share prices.

The typical method to tackle the above-mentioned difficulties is as follows. The scholars usually have to isolate the event of interest by excluding those companies that are affected by confounding events. This solution is better than construct auxiliary assumptions concerning the effect and power of the signals to the market. This is quite problematic if sample consists of large firms that are likely to be involved in several corporate events during the period of analysis (McWilliams and Siegel, 1997). Another possible technique can be found in DeFond et al. (2010), who proposed two-step approach to isolate the effect of the distorting events. Firstly, the information on all events is collected using reliable databases, like Bloomberg, Financial Times or Thomson Reuters (including all annual and quarterly reports, earnings/losses announcements, restructurings announcements, etc.) Secondly, public data sources are analysed in order to extend the sample of corporate events and ensure correct causality and robustness.

However, other scholars indicate that compiling the fullest possible sample of the corporate actions might be insufficient to include all possible confounding events and it is almost impossible to control for all such factors. Nevertheless, Brown and Warner (1985) show that the problem of the confounding events can be omitted and ignored if and only if they are purely random, which usually happens in large samples. Furthermore, Ecker et al. (2006) assert that the widely used assumption of events' randomness is valid. In other words, the incoming news is either (or both) rare and randomly distributed across event and non-event days, and two events cancel each other[2].

Finally, one of the most important problems that researchers consider in the context of the event study methodology is the phenomenon of time-varying variance.

[2] The cancelling argument can be explained through the process of abnormal returns estimation. In particular, average abnormal returns, calculated for the so called "clean", non-event period, are widely used as a benchmark for the event studies. If other information or news are equally likely to take place on event days and on non-event days, then both estimated and control abnormal returns would contain the component of additional incoming information. When these two returns are compared, the effect of confounding events is eliminated. Importantly, for this argument to be valid, the frequency and magnitude of the confounding events should not depend on the merger events.

Normally, the standard event study framework is improved by using Generalised AutoRegressive Conditional Heteroskedasticity (GARCH) model. Although one of the basic assumptions of the classic event study technique is an equal variance for all investigated sub-periods, some influential papers admitted that this ideal scenario is not the case in the majority of samples (Brown and Warner, 1985). Brockett et al., (1994) emphasise that if the variance is assessed incorrectly (most frequently underestimated), the null hypothesis would be over-rejected in the subsequent analysis. Other papers aimed to explain and describe the importance of the time-varying variance effect in the event studies (Weston et al., 1999; Leggio and Lien, 2000; Xu et al., 2003; Murthy and Rao, 2009). The researchers were unanimous that it should be addressed in the merger studies scrupulously, as the majority of the financial series are prone to time-varying variance. This argument is extremely important for the studies that examine the periods of structurally different stock price behaviour or the periods of economic or financial crises.

Engle (1982) developed a new model that was designed to tackle the problems caused by the time-varying variance. The author presented the new class of stochastic processes – ARCH (AutoRegressive Conditional Heteroskedasticity). The initial specification was later generalised to become GARCH model (Bollerslev, 1986; Baillie and Bollerslev, 1990). The key motivation was to link current conditional variance to its past values (Wang et al., 2002). The standard GARCH model includes two equations in one system: the mean equation and the conditional variance equation. The core advantage of the GARCH specification is that this model controls for the time-varying variance (which can be crucial in the analysis of the financial crises or other periods of high volatility) and estimates the expected returns in a similarly simple way as the OLS model.

Similarly to the method used to calculate normal and abnormal returns previously, adjusted GARCH (1;1) model is widely implemented to obtain "normal" returns in the following specification:

$$\begin{aligned} R_{it} &= \alpha_i + \beta R_{mt} + \varepsilon_{it} \\ \varepsilon_{it} &= \nu_t \, \sigma_{it}; \, \nu_t \sim N(0,1) \\ \sigma_{it}^2 &= A + B\varepsilon_{it-1}^2 + C\sigma_{it-1}^2 \end{aligned} \tag{7}$$

where R_{it} – normal return; R_{mt} – market return, α, β – coefficient, ε_{it} – residuals of mean equation, A, B, C – coefficients in variance equation, σ_{it} – conditional variance.

The first equation denotes mean equation, and the second one is variance equation. A plethora of papers demonstrated that the volatility is persistent in the financial markets and that a GARCH (1;1) model performs well in these conditions (Lamoureux and Lastrapes, 1993). Furthermore, Wang et al., (2002), Batchelor and Orakcioglu (2003), McKenzie et al. (2004) decided to use GARCH (1;1) model in their investigations.

Further, after obtaining the abnormal returns estimated with help of GARCH techniques, it is necessary to perform analysis using characteristics of merger deals and other bank-specific factors. The latter can provide further insight on the impact of M&A processes on the shareholders' wealth of bidders and targets and to establish what deal characteristics can be considered the most important for the acquisition to succeed. Generally, dummy variables are applied in order to explain the influence of the above-mentioned factors.

Usually, the following equation is estimated:

$$CAR_j = Z_j \delta + \varepsilon_j \qquad (8)$$

where CAR_i is cumulated abnormal return for the bank j, Z_j is the vector of bank- and deal-specific variables, δ is the vector of the estimated parameters and ε_j is an error term.

Assessing event study methodology in general, researchers point out some substantial drawbacks of the event study methodology, which arise during measurement of the short-term post-merger performance:

1) event study methodology relies on the availability of the stock prices data. Therefore, only mergers among publicly-listed companies can be studied. Thus, Rhoades (1998) concludes that results obtained from event studies are at least not representative for the whole financial industry and significantly differ for the subsample of the private companies.

2) it is important to emphasise that event study methodology relies on assets prices to establish post-merger benefits for the involved companies. However,

inferences on the merger results on the basis of stock prices fluctuation and changes in shareholders' returns are at least unobvious in the short run. In many cases, it takes several years for the post-acquisition benefits to materialise. Thus, it can be more appropriate to treat results obtained by event studies as evidence for a short-term change of shareholders' wealth rather than benefits for the bidder or target in aggregate. Furthermore, these problems deepen if the information asymmetries are present between acquirers and market investors. Consequently, it might be highly dubious to think that market-oriented approach provides a full, unbiased and accurate picture of the value-creating potential (Healy et al., 1997).

3) Lyon et al. (1999) demonstrated that misspecification is a quite frequent shortcoming in the narrow, single-industry samples. Further, differences in sensitivity to news for different country stock indices create space for the ambiguity of the obtained results (Park, 2004).

4) Finally, the selection of the appropriate event window is arbitrary, and there are almost no convincing theoretical justifications behind it. The length of examination period around the merger date of a merger is highly variable across different studies; additionally, reported results of event studies are time-sensitive, depending on the market activity, irrespectively to merger processes.

Taking these drawbacks of the short-term event-study methodology into consideration, several researchers offered solutions and implemented long-term event-study methodology that is free of the short-term event study drawbacks and can serve as an alternative framework to assess post-acquisition value effects for the involved banks.

3.1.2. Long-term event study

The key objective of the long-term studies on mergers is to investigate the connection between market reaction and post-merger performance in the long-run. Thus, scholars advocate for the usage of buy-and-hold returns (BHARs). The market-based research of long-term returns as the proxy to measure the outcomes of the takeovers is based on the same preconditions and methodology as short-term studies. The main modification implemented in this type of research are BHARs, which were first introduced in the new line of studies published by Ritter (1991) and Ikenberry et al. (1995).

Typically, BHARs are defined as margin between the actual return for the particular stock and the expected buy-and-hold return (Lyon et al., 1999):

$$BHAR_i = \prod_{t=1}^{T}(1 + r_{it}) - E(\prod_{t=1}^{T}(1 + r_{it})) \quad (9)$$

where T - the number of months after the event; r_{it} – return of firm i in month t and $E(\prod_{t=1}^{T}(1 + r_{it}))$ is the expected return. The expected return is usually measured using the market index as a benchmark.

As in the case of short-term event study, it is also important to establish to which extent different external factors influence the outcome of the mergers. Regression analysis is usually deployed including the set of deal-related and company-related variables. The control variables are frequently introduced to establish what characteristics are important for the merger outcomes. Multivariate regression models of the abnormal returns to acquirers and targets are estimated (see Equations 9 and 10). Further, another powerful solution is to include the set of accounting data variables and to test whether operating performance is influencing abnormal returns. In particular, the following equations are estimated:

$$CAR_i = \alpha + \beta \sum_{i=1}^{N} X_i + \varepsilon_i \quad (10)$$

$$BHAR_j = \alpha_{LR} + \beta_{LR} \sum_{j=1}^{N} X_j + \varepsilon_j \quad (11)$$

where α and α_{LR} are the intercepts of the model, β and β_{LR} are the coefficients, and X_i and X_j represent the vectors of bank-specific, deal-specific and country-specific explanatory variables for short run and long run models, respectively.

Several scholars admit that BHAR methodology is optimally applied to the problems of the long-run performance estimation (Rau and Vermaelen, 1998; Lyon et al., 1999; Loughran and Ritter, 2000). However, other researchers prefer to utilise the portfolio approach (Mitchell and Stafford, 2000). The main point of the argument between different scholars is centred around the trade-offs between Type I and Type II errors. Generally, it is considered that the implementation of the buy-and-hold approach tends to over-reject null hypothesis, yet being powerful enough. In contrast, portfolio approach accumulates individual events in the calendar-time portfolios,

excluding important information about the investors' experience. As a result, Type II errors are frequent.

Barber and Lyon (1997) compared CARs and BHARs for the identical sample of merger events and concluded that long-run CARs are biased estimators. Furthermore, buy-and-hold abnormal returns have a crucial quality, as they incorporate the investor experience, as BHAR returns are compounded (Barber and Lyon, 1997). The authors add that buy-and-hold approach is much more suitable for the long-term analysis (Pecherot-Petitt, 2000).

However, Barber and Lyon (1997) indicate several biases that are linked with buy-and-hold methodology:

1) new listing bias, which usually emerges in the long-run studies. This effect occurs because new companies are constantly added to the market index, that is used as a proxy to determine expected returns, whereas sampled firms have constant history of stock prices prior and after the acquisition event;

2) rebalancing bias, which manifests itself in the possible difference between market index returns (usually rebalanced at regular intervals) and portfolio returns (which are normally compounded without rebalancing);

3) skewness bias, which is often observable for long-run BHARs.

Summarising, long-term event study methodology is not immune to the drawbacks. Primarily, researchers indicate that the most serious shortcoming of the BHAR-based framework is a large number of confounding events that occur during the analysed period. However, the ability to incorporate investors' experience in the long-term investigation makes long-run event study methodology applicable in examining M&A's outcomes.

3.2. Assessing post-merger operating performance

3.2.1. Accounting performance studies

Apart from the market-based approach, another part of researchers considers internal corporate information more valuable to assess post-merger outcomes. Thus the accounting data is used to determine gains or losses for companies involved in the takeover process. Regarding the process of accounting data assessment, some scholars deploy pure accounting-based approach to track the changes in the post-merger performance by direct comparison of accounting ratios before and after the merger. The researchers also consider the possibility that operating performance

might be externally influenced by industry-specific factors and other non-forecasted shocks. These concerns largely explain the industry adjustment, which can often be encountered in the studies. Similarly to the event studies, the focal point of accounting studies is also to estimate the industry-adjusted abnormal performance, which is basically presented as a difference between the bank-specific variable and the mean value of the control sample. The latter can be constructed from the banks that have never been involved in takeover activities, possibly size- and country-matched as well.

The most widespread method to estimate the variables that influence post-merger performance is a regression analysis. The most appropriate banks-specific ratios (solvency, liquidity, profitability, efficiency, etc.) are included in the model (see Hagendorff et al., 2012 for an illustrative specification):

$$X_{i,j} = \alpha + \beta_1 Z_{1j} + \beta_2 Z_{2j} + \beta_3 Z_{3j} + \varepsilon_{i,j} \qquad (12)$$

Vector X_i represents aggregate changes in variable *i* for the bank *j* in particular years prior and after the year when the acquisition was finalised. Z_{1j} –vector of bank-specific variables; Z_{2j} – vector of deal-specific variables; Z_{3j} – vector of country-specific variables. β_1, β_2, β_3 – vectors of coefficients, $\varepsilon_{i,j}$ – heteroskedasticity-robust error term; j - company type dummy (target or acquirer). Importantly, the researchers can also use separate sample of acquirers and targets to distinguish between companies involved into M&A's. For the bidder sample, the post-acquisition of the combined entity is compared with the pre-deal values.

Some scholars also admit the presence of the specific behaviour patterns that can be observed for the operating performance variables. If the industry is affected by some random external shock, there would be an adjustment towards the mean value during the period of the analysis (normally 3 to 5 years). Thus it can be concluded that the dependent variable would be reversely linked to the first year values. These important comments were first expressed by Knapp et al. (2006) and are derived from the study by Fama and French (2000). The authors found out this interesting effect when they analysed profitability changes (measuring ROA and ROE) in the banking industry and continuously reported significant negative coefficient for the respective coefficients.

The set of variables used in the relevant literature is usually similar to the variables used in the event study methodology and can be divided into several categories:

1) liquidity and stability ratios: capital adequacy, Tier 1 capital, Tier 2 capital;

2) profitability ratios: ROE, ROA, net income and EBITDA;

3) financial ratios: total assets turnover, debt-to-assets, debt-to-equity, equity-to-deposits, loans-to-capital and cash-flow-to-revenue;

4) valuation ratios: Tobin's Q, book value per share, total assets and total deposits;

5) macroeconomic variables: GDP growth rate, Country Risk Index (calculated by UNCTAD), US dollar exchange rate to any other relevant currency, inflation rate and Herfindahl-Hirschman index.

Additionally, all the appropriate deal-specific dummy variables are incorporated, similar to the short-term event-study (cross-border status, payment type, Eurozone membership, diversification status, etc.)

However, some researchers consider the direct comparison of ratios improper due to several reasons: the probability that accounting data can be manipulated by management, differences in accounting standards among countries, etc. Thus these scholars undertake other approaches. They solve the problem of more complicated cost and profit efficiency analysis by implementing DEA (data envelopment analysis) and SFA (stochastic frontier analysis).

3.2.1.1. DEA (Data envelopment analysis)

The objective of DEA is to assess the technical efficiency of banks or other firms involved in M&A's. The methodology was first proposed by Charnes et al. (1978), who elaborated a linear programming method to assess the maximum potential outputs at given inputs. This approach provides an accurate analysis of efficiency, provided that technology remains unchanged. The researchers construct the output frontier relying on the input data for each bank in the sample (Coelli et al., 1998). The relative cost efficiency measure CE_j is obtained as a ratio of the estimated minimum cost bank j could potentially achieve to its realised cost, where $0 < CE_j < 1$ and equals unity when the bank is deemed cost efficient. However, costs are not the only parameter that is important for the banks, as profit maximisation is a basic

objective for managers and their shareholders as final beneficiaries. Some scholars argue that cost-effective financial institutions can be not so efficient considering the aspect of profits. The same procedure can be repeated for the relative profit efficiencies ($0 < PE_j < 1$).

Banks' cost and profit efficiencies are measured relative to a common frontier by pooling the data across countries estimated separately for each year. This approach allows for estimating efficiency differentials not only between conglomerates and specialised banks within a country but across countries as well using the same benchmark technology.

In more technical terms, the calculation process is following. Assume that there is data on *K* inputs and *M* outputs for each of *N* banks. For *i* bank inputs and outputs are represented by the vectors x_i and y_i respectively. *K* x *N* input matrix – *X* and the *M* x *N* output matrix – *Y* represent the data for all *N* banks. The input-oriented efficiency score for each bank is calculated in towing way (under constant return to scale):

$$\begin{aligned} &\min \theta, \\ &-y_i + Y\lambda \geq 0 \\ &\theta x_i - X\lambda \geq 0 \\ &\lambda \geq 0 \end{aligned} \qquad (13)$$

where θ is a scalar representing the efficiency score for each bank in the sample (from 0 to 1); λ is a vector of *N* x *1* constants. Here, linear programming problem has to be solved *N* times, once for each bank in the sample.

The second phase of the investigation is usually aimed to determine the relationship between the obtained efficiency levels and the set of deal-, bank- and country-specific factors. The regression analysis is a widely agreed method. Normally, the following regression specification is estimated:

$$Eff_j = Z_j\delta + \varepsilon_j \qquad (14)$$

where Eff_i is cost/profit efficiency, Z_j is the vector of the bank-, deal- and country-specific variables of the bank j, δ is the vector of estimated parameters and ε_j is an error term (Simar and Wilson, 2007).

3.2.1.2. SFA (Stochastic frontier analysis)

In contrast to the above-mentioned non-parametric DEA methodology, scholars widely implement the parametric methodology of SFA (stochastic frontier analysis). Its key advantages over DEA are following. First, SFA model includes the error term, representing random factors as external shocks, statistical noise, that cannot be controlled and anticipated by the banks. It is important to incorporate exogenous impact, as otherwise it would be determined as inefficiency in the model. Second, enables the researcher to perform statistical tests after the estimation.

SFA methodology was first proposed by Aigner et al. (1977) and Meeusen and van den Broeck (1977). Battase and Coelli (1995) developed the initial model and elaborated the framework that describes technical inefficiency of analysed banks. Thus, the determinants of inefficiencies became possible to assess using one-step approach.

The researchers continued to improve the specifications of the initial SFA models and made them applicable to the analysis of the M&A's in the banking sector. Although the differences between various model versions are few, the most widespread formulation is a translog variation. The profit frontier model is usually presented in the following way:

$$ln\pi = \alpha + \sum_{j=1} lny_j + \sum_{k=1} lnw_k + \frac{1}{2}\sum_{j=1}\sum_{l=1} lny_j lny_l + \\ + \frac{1}{2}\sum_{k=1}\sum_{l=1} lnw_k lnw_l + \sum_{k=1}\sum_{l=1} lny_j lnw_k + \varepsilon_\pi \quad (15)$$

where: j - outputs; k - inputs; π - profit (total revenue minus total cost); y_j - output j; w_k = input price k; and $\varepsilon_\pi = u_\pi + v_\pi$. ε_π is total residual, which can be decomposed into u_π, (profit inefficiency) and v_π (random noise effect)(Jondrow et al., 1982). Afterwards, the ML (maximum likelihood) estimation is fulfilled to obtain translog profit frontier. Importantly, the error terms, u_π and v_π, have to meet following condition:

$$u_\pi \sim |N(0, \sigma_{u\pi}^2)|, v_\pi \sim |N(0, \sigma_{v\pi}^2)| \quad (16)$$

Unfortunately, there is no current consensus among scholars considering the set of variables that are important to simulate an optimal input or output frontier for the banks. Nevertheless, it is widely agreed, that two basic approaches are utilised: intermediation approach and production approach, which differ mainly in their interpretation of the key functions of the banking sector. The first approach considers banking institutions as intermediaries in the capital markets, facilitating the exchange between borrowers and lenders. Outputs should include loans and deposits, and costs of funds should be considered as inputs. Meanwhile, the second approach regards banks as production units which utilise tangible assets as inputs to produce operations with funds as outputs. The number of transactions is the key output variable, while capital and labour are core input variables.

As Berger and Humphrey (1997) emphasise, both approaches have their shortcomings. As authors argue, the production-based interpretation is optimal for estimating micro-efficiency (at branch level), whereas intermediation interpretation performs a better for efficiency assessment of the consolidated structures. It is also a frequent practice to ignore the non-core activities of the banks, as it can extremely difficult to trace their input/output structure otherwise.

Considering the set of utilised variables, the output generally consists of loans, deposits and non-interest income (to partially reflect the above-mentioned non-core activities). The input component includes physical capital, staff and management expenses, interest payments on deposits (Berger et al., 1987; Berger & Humphrey, 1991; Rogers, 1998). After the construction of the frontier, the efficiency scores are estimated according to the following formula:

$$Eff_{c,p} = \frac{\hat{u}_\pi^i}{\hat{u}_\pi^{max}} \quad (17)$$

where: *i = 1, ..., N* are banks in the analysed sample, $\hat{u}_\pi^{max}$ = the maximum value of $\hat{u}_\pi^i$ i across the sample for a particular year, and $\hat{u}_\pi^i$ = the expected profit of *i* bank at a given output for a particular year. Based on the last equation, each raw inefficiency score, $\hat{u}_\pi^i$, is divided by the highest inefficiency score, $\hat{u}_\pi^{max}$ to obtain the final efficiency score of each bank.

As in the previous methodologies, the final stage requires regression analysis to be performed in order to determine the correlation and its power between inefficiencies and the set of deal-, bank- or country-related factors. The regression specification is identical to the one mentioned in the section on DEA.

3.3. Prediction of M&A likelihood

Further, some researchers aim to investigate the likelihood of a particular bank to become the target of the acquirer in the M&A processes. Thus, logistic (logit) regression is implemented to assess the probability for a particular bank to acquire another firm or to be acquired and to determine the functional relationship between the bank characteristics and the merger probability. As Palepu (1986) emphasises, this model allows the scholar to assess logit probability function of the measured attributes of the firm. Other scholars also support the logit regression as the optimal choice to model takeover probabilities (Pasiouras et al., 2007).

The most widespread logit model is similar to the approach taken by Brar et al. (2009), Ramanathan (2002), Alcalde and Espitia (2003). Equation (18) is presenting a general form of the logistic regression model. The model can then be presented as follows:

$$p\ (i,t) = \frac{1}{1+e^{-\beta x(i,t)}} \qquad (18)$$

where:

$$x(i,t) = \alpha_0 + \alpha_1 z_{1t} + \alpha_2 z_{2t} + \cdots + \alpha_n z_{nt} \qquad (19)$$

$$L_i = \ln\left(\frac{P_i}{1-P_i}\right) = x(i,t) = \alpha_0 + \alpha_1 z_{1t} + \alpha_2 z_{2t} + \cdots + \alpha_n z_{nt} \qquad (20)$$

$$\frac{\partial P_i}{\partial z_n} = \alpha_n P_i (1 - P_i) \qquad (21)$$

and *p(i,t)* - the probability of takeover occurrence in year *t, x(i,t)* - the vector of bank-, market- and country-specific variables in year *t, β* - a vector of unknown parameters. The dependent categorical variable *p* can vary between 0 and 1. Note that equations (20) and (21) show the existence of a linear relationship between the log-odds ratio L_i and the explanatory variables. However, the relationship between

the probability of the event and acquisition likelihood is non-linear and has a major advantage that is demonstrated below. Non-linear relationship measures the change in the probability of the event as a result of a small increment in the explanatory variables z_n.When the probability of the merger is high or low, the incremental impact of a change in an explanatory variable on the likelihood of the event will be compressed, requiring a large change in the explanatory variables to change the classification of the observation (Peat and Stevenson, 2008). If a bank is clearly classified as a target or bidder, a large change in the explanatory variables is required to change its classification.

Afterwards, the estimated coefficients are compared with the reference group: for instance, direct (reverse) correlation can be asserted if a positive (negative) change in the merger likelihood was observed along with an increase in the explanatory variable. Several researchers argue that matched approach for constructing the control group should be implemented (Powell, 2001; Brar et al., 2009).

After the most common methodologies used in the existing literature are described, it is important to retest the initial research hypotheses by replicating several studies that investigate the post-merger outcomes and attempt to determine the most important factors for the maximum wealth gains for the shareholders of target and bidder banks in the European Union. The papers by Ekkayokkaya et al. (2009) and Asimakopoulos and Athanasoglou (2013) were selected.

4. The impact of the external shocks on the shareholders' wealth of the European bidder banks (following Ekkayokkaya et al., 2009)

This chapter is dedicated to the replication and further extension of the paper by Ekkayokkaya et al. (2009), which investigates the announcement period changes to the shareholder wealth of banks involved in M&A's in the European Union. The focus of the initial research and its replication in chapter 4.1 in concentrated on the impact of the introduction of the euro on the banks' shareholders' wealth. In the context presented by researchers, the introduction of the euro as a common currency for the European Union members can be considered as a powerful external factor that influences the outcomes of banking M&A's. Further, the chapter 4.2 extends the initial research, considering banking mergers in 1990-2015 in broader, modern configuration of the European Union – EU-28. The extended period gives an opportunity to analyse the impact of the global financial crisis on the M&A outcomes in the same manner, as Ekkayokkaya et al. (2009) analyse the impact of the powerful external factor – the introduction of the euro.

The authors attempted to test following hypotheses:

1) abnormal returns are higher in the period before the introduction of the euro comparing to the period after the introduction of the euro;
2) diversified mergers are more profitable than focused mergers in the period after the introduction of the euro and equal in the pre-euro period;
3) abnormal returns for bidders involved in domestic and cross-border mergers are unequal before the introduction of the euro (for focused mergers), but become homogenised afterwards; abnormal returns for bidders involved into diversified mergers are equal in any studied period
4) abnormal returns to the acquirers of Eurozone targets in the pre-euro period are greater than abnormal returns to the acquirers of non-Eurozone targets, and vice versa in the post-euro period.

The data is collected from Thomson Reuters SDC Platinum database and include stock prices of all banks that are involved into M&A's between 1990 and 2015, as well as stock market indices. The key selected methodology was event study (market return model), assessing the abnormal returns of bidders and targets around the merger announcement date with market return model, used previously by Fuller et al. (2002) and Faccio et al. (2006). Obtained CARs (cumulative abnormal returns)

were included into regression analysis framework revealing the changes in the shareholders' wealth and the factors of M&A's success or failure.

Importantly, to make the sections below more clear and understandable for the reader in the context of replication and extension of the paper by Ekkayokkaya et al. (2009), it is necessary to outline several specific terms that would be used quite frequently further.

Firstly, "cross-border M&A's" are M&A's which involve bidder and target originating from different countries. Alternatively, "domestic M&A's" involve bidder and target with the identical country of origin.

Secondly, "focused M&A's" are mergers that involve banks from the same industry (banking sector in the case of this thesis). As long as the broader aspect of the EU financial sector is considered in Ekkayokkaya et al., (2009), "focused" M&A's are mergers between banks, while "diversified" M&A's are mergers between banks and other financial companies (asset management funds, insurance companies, etc.) The concept of focused/diversified mergers is also referred to as "relatedness of business" and covers the same issue in the context of M&A's.

Thirdly, the "Eurozone" includes the group of countries that use the euro as their official currency. "Non-Eurozone countries" include EU members with other currencies (e.g. the UK, Sweden, Denmark, etc.). Finally, "non-EU countries" are countries that were not members of the EU. As the extension section is presented further, it becomes very important to clarify the dynamic aspect as well: the countries are not assigned a particular status for the whole examination period used in the second part of Chapter 4 (1990-2015), as particular countries entered the Eurozone (Slovenia switched to the euro as its official currency in 2007, Cyprus in 2008, Slovakia in 2009 and Estonia in 2011). For the countries that joined the EU and the Eurozone during the period of analysis (1990-2015), the status of the deal is considered according to the EU and Eurozone membership status in the year when the deal occurred. For instance, if a French bank bought a Slovenian bank in 2003, it would be classified as a deal between EU bidder and non-EU target. On the other hand, if the same deal occurred in 2010, it would be an EU-EU merger, as both countries were members of the EU. Similar classification can be performed in the context of the Eurozone membership: the first case in the example above can be classified as a merger between Eurozone bidder and non-EU target, while the second

case can be classified as a merger between both Eurozone-belonging bidder and target (as between 2003 and 2010 Slovakia joined the EU in 2004 and the Eurozone in 2009).

Fourthly, it is crucial to mention that this thesis extends the replication procedure by analysing the period of 1990-2015, widening the time frame of analysis in order to capture the changes in the European banking M&A since the beginning of the 1990s, when first EU commission was issued and started the processes of financial consolidation, up to the most recent period with fully available data. Furthermore, the current members of EU-28 are considered, instead of much more frequent EU-15 in the literature. The reason behind this is following: as all current EU members joined the European Union eventually, it would be fair to claim that their financial systems were gradually transformed to match the criteria of developed economies. However, as was said in the previous paragraph, the period when these countries were not members of the EU is captured by the dynamic classification.

4.1. Replication of the paper by Ekkayokkaya et al. (2009)

4.1.1. Sample and data characteristics

Identically to the study by Ekkayokkaya et al. (2009), all banking mergers in the EU-15 in 1990-2004 were included in the replication sample. Note that the EU was considered in its EU-15 configuration (as prior to the year 2004: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the UK). All of these countries joined the Eurozone on 01.01.1999, except Greece (joined the Eurozone in 2001), the UK, Sweden and Denmark (retained their own currencies). It is required that the bidder is listed on a public stock exchange in one of the 15 EU countries and that the bidders' share prices are available from Datastream. The minimum deal size is $1 million. To assess the impact of the structural changes in the banking M&A market after the introduction of the euro, the period of 1990-2004 is divided into 3 sub-periods: pre-euro (1990–95), run-up to the euro (1996–98), and post-euro (1999–2004). All the deal-related information was also downloaded from Thomson Financial Database (announcement dates, countries of origin, payment type, deal value, etc.). After checking for the availability of the stock prices data, 898 bids survived these criteria.

Table 2 describes the distribution of M&A activities of the banks originating from the 15 EU countries in our sample. The cross-tabulation of acquisition bids shows that most of the sample bids are announced by banks based in Italy (178), Spain (166), UK (118), Germany (97) and France (96). The data further shows that Finland and Luxembourg have the least active M&A markets (1 and 10 bidders respectively).

Table 2. Distribution of merger deals by bidders' and targets' countries of origin (replication sample, 1990-2004).

The table shows the geographical distribution of sample bids announced by banks based within the European Union (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the UK) during 1990–2004. New EU members include the ten countries that joined the EU on 1 May 2004: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. A bidder is included in the sample if it is categorised as a bank in the Thomson SDC database, is listed on a stock exchange in one of the 15 European member countries, and has participated in the M&A activities between 01.01.1990 and 31.12.2004.

	Target Nation																	
Acquirer Nation	**Austria**	**Belgium**	**Denmark**	**Finland**	**France**	**Germany**	**Greece**	**Ireland**	**Italy**	**Luxembourg**	**Netherlands**	**Portugal**	**Spain**	**Sweden**	**UK**	**New EU**	**Outside EU**	**Total**
Austria	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	5	3	**12**
Belgium	0	17	0	0	6	0	0	1	1	1	3	1	0	0	1	2	8	**41**
Denmark	0	0	15	0	0	0	0	0	0	0	0	0	0	2	1	1	2	**21**
Finland	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
France	0	1	1	0	80	0	0	0	4	0	1	0	2	0	1	1	5	**96**
Germany	1	1	0	0	6	34	2	0	7	0	1	0	5	0	4	12	24	**97**
Greece	0	0	0	0	0	0	29	0	0	0	0	0	0	0	0	2	5	**36**
Ireland	1	0	0	0	0	0	0	8	0	0	0	0	0	0	3	4	1	**17**
Italy	0	0	0	0	2	4	0	0	152	4	0	0	4	0	1	4	7	**178**
Luxembourg	0	0	0	0	4	1	0	0	1	0	1	0	3	0	0	0	0	**10**
Netherlands	0	2	0	0	0	1	0	0	3	0	5	2	0	0	1	1	18	**33**
Portugal	0	0	0	0	0	0	1	0	0	0	1	21	3	0	0	1	1	**28**
Spain	0	0	0	0	3	2	0	0	5	0	0	9	70	0	3	0	74	**166**
Sweden	0	0	6	4	0	1	0	0	0	0	0	0	0	13	0	14	6	**44**
UK	0	0	0	0	7	1	0	3	3	0	1	1	5	1	61	2	33	**118**
Total	**5**	**21**	**22**	**5**	**108**	**45**	**32**	**12**	**176**	**5**	**13**	**34**	**92**	**16**	**76**	**49**	**187**	**898**

Table 3. Distribution of sample deals by bidders' and targets' countries of origin (sample of Ekkayokkaya et al., 2009).

The table shows the geographical distribution of sample bids announced by banks based within the European Union (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the UK) during 1990–2004. New EU members include the ten countries that joined the EU on 1 May 2004: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. A bidder is included in the sample if it is categorised as a bank in the SDC database, is listed on a stock exchange in one of the 15 European member countries, and has participated in the M&A activities between 01.01.1990 and 31.12.2004.

	Target Nation																	
Acquirer Nation	**Austria**	**Belgium**	**Denmark**	**Finland**	**France**	**Germany**	**Greece**	**Ireland**	**Italy**	**Luxembourg**	**Netherlands**	**Portugal**	**Spain**	**Sweden**	**UK**	**New EU**	**Outside EU**	**Total**
Austria	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	2	**10**
Belgium	0	8	0	0	5	0	0	2	0	1	2	0	0	0	0	7	3	**28**
Denmark	0	0	8	0	0	0	0	0	0	0	0	0	0	0	1	1	1	**11**
Finland	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
France	0	5	1	0	119	4	3	1	4	0	1	0	6	0	9	3	34	**190**
Germany	1	1	0	0	6	34	2	0	9	0	0	0	6	0	6	11	30	**106**
Ireland	0	0	0	0	0	0	0	4	0	0	0	0	0	0	1	4	1	**10**
Italy	0	0	0	0	2	4	0	0	168	4	0	0	5	0	1	4	11	**199**
Luxembourg	0	0	0	0	1	1	0	0	1	0	1	0	3	0	1	0	0	**8**
Netherlands	0	3	0	0	0	1	0	0	3	0	5	2	0	0	1	1	20	**36**
Portugal	0	0	0	0	0	0	0	0	0	0	0	11	1	0	0	0	2	**14**
Spain	0	0	0	0	3	1	0	0	2	0	0	6	45	0	3	0	41	**101**
Sweden	0	0	6	3	0	1	0	0	0	0	0	0	0	21	0	15	8	**54**
UK	0	0	0	0	6	2	0	3	4	0	2	1	7	1	123	0	44	**193**
Total	**2**	**17**	**15**	**6**	**142**	**48**	**5**	**10**	**191**	**5**	**11**	**20**	**73**	**22**	**146**	**53**	**197**	**963**

Table 4a. Sample characteristics.

Bids announced by banks based within the European Union (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the UK) during 1990–2004 are included in the sample. The sample ensures that the bidder is categorised as a bank in the SDC database, listed on a stock exchange in one of the 15 European member countries, bidders' share price is available from Datastream, and the value of the takeover deal is at least $1 million. For a given deal, the deal value is reported in US dollars. The sub-sample periods are: pre-euro (1990–95), run-up to the euro (1996–98), and post-euro (1999–2004)

Panel A. Distribution of deals by bidder's nation (replication sample).

	Domestic target bidders			**Foreign target bidders**			**All bidders**		
	Listed	**Unlisted**	**Total**	**Listed**	**Unlisted**	**Total**	**Listed**	**Unlisted**	**Total**
Pre-euro	63	87	**150**	29	52	**81**	92	139	**231**
Run-up to the euro	35	47	**82**	56	53	**109**	91	100	**191**
Post-euro	95	159	**254**	102	120	**222**	197	279	**476**
Total	**193**	**293**	**486**	**187**	**225**	**412**	**380**	**518**	**898**

Panel B. Distribution of deals by bidder's nation (sample by Ekkayokkaya et al., 2009).

	Domestic target bidders			**Foreign target bidders**			**All bidders**		
	Listed	**Unlisted**	**Total**	**Listed**	**Unlisted**	**Total**	**Listed**	**Unlisted**	**Total**
Pre-euro	79	77	**156**	34	52	**86**	113	129	**242**
Run-up to the euro	43	52	**95**	33	48	**81**	76	100	**176**
Post-euro	120	179	**299**	103	143	**246**	223	322	**545**
Total	**242**	**308**	**550**	**170**	**243**	**413**	**412**	**551**	**963**

Table 4b. Sample characteristics (continued).

Bids announced by banks based within the European Union (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the UK) during 1990–2004 are included in the sample. The sample ensures that the bidder is categorised as a bank in the SDC database, listed on a stock exchange in one of the 15 European member countries, bidders' share price is available from Datastream, and the value of the takeover deal is at least $1 million. For a given deal, the deal value is reported in US dollars.

Panel A. Summary statistics by bidder's nation (replication sample).

	Domestic bidders			**Foreign bidders**			**All bidders**		
	Mean	*Median*	*St.Dev.*	*Mean*	*Median*	*St.Dev.*	*Mean*	*Median*	*St.Dev.*
Shares acquired (%)	50.61	46.82	37.50	48.09	36.00	39.37	49.44	42.30	38.37
Deal Value (in $ million)	712.68	88.72	2477.19	381.40	103.75	1070.07	560.69	98.43	1967.2
MV of bidders (in million $)	12999.43	3852.46	23100.25	29214.22	20180.39	33027.02	20636.08	6601.5	29267.42
Raw return (-1;+1) in days (%)	0.103	0.149	0.052	0.471	0.376	0.044	0.272	0.234	0.049
Raw return (-20;+20) in days (%)	1.830	1.806	0.136	2.96	2.468	0.193	2.349	2.196	0.165

Table 4b. Sample characteristics (continued).

Bids announced by banks based within the European Union (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the UK) during 1990–2004 are included in the sample. The sample ensures that the bidder is categorised as a bank in the SDC database, listed on a stock exchange in one of the 15 European member countries, bidders' share price is available from Datastream, and the value of the takeover deal is at least $1 million. For a given deal, the deal value is reported in US dollars.

Panel B. Summary statistics by bidder's nation (sample by Ekkayokkaya et al., 2009).

	Domestic bidders			**Foreign bidders**			**All bidders**		
	Mean	*Median*	*St.Dev.*	*Mean*	*Median*	*St.Dev.*	*Mean*	*Median*	*St.Dev.*
Shares acquired (%)	46.34	34.75	40.12	48.48	40.00	39.32	47.26	37.60	39.78
Deal Value (in $ million)	425.52	45.54	1473.01	204.27	46.95	628.36	330.63	46.28	1191.37
MV of bidders (in million $)	5318.94	2921.18	6838.87	10266.56	7870.47	11198.52	7440.82	5354.75	9295.25
Raw return (-1;+1) in days (%)	-0.063	0.000	4.981	0.367	0.553	3.769	0.121	0.037	4.504
Raw return (-20;+20) in days (%)	1.840	1.637	12.075	1.960	1.788	11.459	1.892	1.771	11.809

Generally, the differences in the number of M&A's between the replicated sample (Table 2; Table 4a, Panel A; Table 4b, Panel A) and an original sample of Ekkayokkaya et al. (2009)(Table 3; Table 4a, Panel B; Table 4b, Panel B) can be explained by the several reasons. Firstly, it seems that Ekkayokkaya et al. (2009) utilised some additional filter while collecting data, or otherwise omitted the filter that authors mentioned in the article. It is quite hard to speculate upon the possible filters that were not applied by Ekkayokkaya et al. (2009). For instance, my sample includes 36 deals with Greek bidders, whereas the sample by Ekkayokkaya et al. (2009) does not include any Greek acquirers at all. Possibly, Ekkayokkaya et al. (2009) filtered all the state- or government-related targets and bidders, and this filter was not explicitly indicated in the respective section of the research paper. Furthermore, as can be seen from a comparison of UK and French acquirers, Ekkayokkaya, et al. (2009) included a larger number of banking mergers into their sample. In the cases of the UK or France, these "excess" takeovers can be some kind of private transactions that were re-classified or underwent status-changing adjustments in the Datastream database.

Secondly, as was discovered in the private communication with the Thomson Reuters data centre officials, differences in samples might be the consequence of major data reorganisations and optimisations in the Thomson Reuters M&A database (SDC and Datastream). For instance, if a company was acquired in the past, it is sometimes reassigned with another data code or eliminated from the database after a particular period of time. If the bidder becomes a target in the future, the number of possible M&A transaction in the potential sample decreases even more. Furthermore, Thomson Financial can change the codes, identifiers, industrial classification or other internal information about the company at any point of time, so that the past mergers can be classified in another way, preventing the researcher from building a sample exactly matching to a given one.

Thirdly, and it is quite a disappointing shortcoming, Ekkayokkaya et al. (2009) do not mention the minimum stake of shares that an acquirer should purchase to classify the transaction as "merger" and not just "portfolio investment". In this thesis, a widely accepted threshold of 50% + 1 share is utilised in order to demonstrate the change of corporate control in an acquisition.

Table 4a shows that 486 bids involved domestic targets and 412 are aimed at foreign targets, which provide evidence that domestic and cross-border mergers are

almost equally distributed in the sample. Table 4b also reports that domestic deals are generally larger than cross-border takeovers ($712 million and $381 million respectively), while the average merger volume is almost $560 million. This observation provides evidence that European banks are more likely to pursue the strategy of international expansion by acquiring small foreign targets and entering new markets by means of M&A's within the EU borders. Table 4b also shows the raw returns of bidder banks around the announcement for the (-1;+1) event window. It is obvious, that bidders of domestic targets gain +0.103% raw return, while bidders of foreign targets gain +0.38%, which is in line with the initial findings of Ekkayokkaya et al. (2009), who reported lower raw returns for domestic mergers (−0.063%) comparing to the foreign deals (+0.367%). The event period of (-20;+20) days shows nearly the same results: cross-border mergers outperform domestic deals –2.47% and 1.83% respectively, although the difference is negligible.

4.1.2. Empirical results

By replicating the paper by Ekkayokkaya et al. (2009), this section aims to investigate and to measure the role of the introduction of the euro in the European market of the banking M&A's. The structural changes were observable after the creation of the single currency zone: currency risks decreased, new regulatory mechanisms reduced the influence of the international barriers and encouraged cross-border expansion. The primary goal is to examine the relationship of these changes with the short-run M&A's outcomes for the bidders.

4.1.2.1. The impact of the introduction of the euro on bidders' gains

Table 5 demonstrates announcement period BHARs for all bidders, which are divided according to the listing status of the target (Table 5, Panel A). The estimates show that on average the EU banks do not add any significant value to shareholders' wealth after takeovers. Being more precise, average announcement period abnormal returns of +0.137% are statistically insignificant (in the event window of (-1;+1)). This finding is consistent with the existing literature on M&A's which suggests that bidders are unable to benefit significantly from acquisitions (Cybo-Ottone and Murgia, 2000; Campa and Hernando, 2006). Nevertheless, it is necessary to consider the M&A outcomes for bidders in each of the sub-periods before and after the introduction of the euro.

The obtained findings differ from the result in Ekkayokkaya et al. (2009). The estimates show differences in bidders' buy-and-hold returns across the above-mentioned periods. Banks, that were involved in M&A deals in the pre-euro era (1990-1995) and in the period after the adoption of the common currency (1999-2004), show insignificant value destruction (-0.054% and -0.068% respectively) to their shareholders' wealth. These results provide evidence contrary to the initial hypothesis and to the findings by Ekkayokkaya et al. (2009), who testified that the abnormal returns were positive and significant during "pre-euro" and "run-up to the euro" periods, and the increased competition decreased average post-merger outcomes after 1999 (see Table 5, Panel A). Our findings clearly reflect the existence of other phenomenon – mergers in the period directly preceding the introduction of the euro (1996-1998) demonstrated significant positive gains of almost +1.291% for acquirers' shareholders. These findings show that the positive structural changes related to the introduction of euro (elimination of cross-border barriers, steep decrease in currency risks) were anticipated by the banks. The market investors have also rewarded these mergers with higher abnormal returns. On the other hand, the banks that decided to expand by means of M&A's after the official announcement of the common EU currency, faced the increased competition and were not able to increase their value.

Recent studies on M&A's show that acquirers' gains are influenced by the target status (Fuller et al., 2002; Faccio et al., 2006). The sample was divided according to the listed status of the target. The results are reported in Table 5, Panel A. It shows that bidders of listed targets gain higher abnormal returns than bidders on unlisted targets: an average abnormal return for the bidders on the unlisted target is +0.045%, whereas listed target firms bring bidders the abnormal return of +0.262%. These findings can be explained by the fact, that although the takeover of the unlisted target is more wealth-enhancing in theory, the synergy gains are very difficult to be materialised in practice (because of costly procedures of due diligence and legal compliance). Subsequent analysis demonstrates that the gains from unlisted target acquisitions are lower in all analysed periods. During the run-up to the euro period, the bidders of both unlisted and listed targets experienced significant gains (+0.93% and +1.291% respectively). However, the excess returns in the pre-euro era were resulting in insignificant value destruction (around -0.053% each). Our findings differ from the results by Ekkayokkaya et al. (2009), showing that the acquisitions of

the listed targets were value-generating for the bidders. Our results were also unable to support positive value gains for the bidders of unlisted targets in 1990-1995. The difference between the replication sample and the findings by Ekkayokkaya et al. (2009) can be explained by probable discrepancies in the sample, caused by omitted information and selection criteria in the initial paper.

Table 5. Excess returns of European banks by target status and relatedness of the business of merger partners.

Three days announcement period (−1 to +1) excess returns (in %) of the European bank acquirers are reported for the sub-samples constructed according to the listing status of target (unlisted and listed) (panel A) and relatedness of the business of merger partners (diversified or focused target) (panel B). The sub-sample periods are pre-euro (1990–95), the run-up to the euro (1996–98), and post-euro (1999–2004). Excess returns (AR) are adjusted for the market movement as in the following equation:

$AR_i = r_i - r_m$,

where r_i is the change in the share price of bidder *i* and r_m is the return on a representative market portfolio. Market return is estimated using the Datastream market index of the bidders' country. T-test of mean equal to zero versus not equal to zero is applied to examine the significance of the abnormal returns. '∗∗∗', '∗∗', '∗' represent significance at 1%, 5% and 10% respectively.

Panel A: Excess returns (%) of all bidders by listing status of target

Euro period	Target status				Replication sample (1990-2004)	Sample of Ekkayokkaya et al. (2009)
	Replication sample (1990-2004)	Sample of Ekkayokkaya et al. (2009)	Replication sample (1990-2004)	Sample of Ekkayokkaya et al. (2009)		
	Listed		Unlisted		All targets	
Pre-euro	-0.053	0.083	-0.056	0.523**	**-0.054**	**0.317***
N	92	113	139	129	**231**	**242**
Run-up to the euro	1.291**	-0.030	0.930**	0.562*	**1.102****	**0.307**
N	91	76	100	100	**191**	**176**
Post-euro	-0.068	-0.515	-0.222	0.036	**-0.158**	**-0.189**
N	197	223	279	322	**476**	**545**
Total	**0.262**	**-0.262**	**0.045**	**0.246***	**0.137**	**0.029**
N	**380**	**412**	**518**	**551**	**898**	**963**

Table 5. (continued).

Panel B: Abnormal returns (%) of all bidders (focused or diversifying deals)(replication sample, 1990-2004)

Euro period	Focused deals (bank-bank)	Diversifying deals					Focused - Diversified
		Insurance	Investments	Financial Services	Others	All diversifying targets	
Pre-euro	-0.006	-0.389	-0.233	0.905	-0.089	-0.093	*0.087*
N	102	18	35	10	66	129	
Run-up to the euro	1.356**	1.890	0.432	-0.443	1.098***	0.772*	*0.584***
N	108	8	27	10	38	83	
Post-euro	-0.679**	1.374**	-0.194	0.684	0.400	0.368**	*-1.046***
N	239	33	82	31	91	237	
Total	**-0.036**	**0.906***	**-0.086**	**0.506**	**0.371****	**0.310***	***-0.346****
N	**449**	**59**	**144**	**51**	**195**	**449**	

Panel C: Abnormal returns (%) of all bidders (focused or diversifying deals)(sample by Ekkayokkaya et al., 2009)

Euro period	Focused deals (bank-bank)	Diversifying deals					Focused - Diversified
		Insurance	Investments	Financial Services	Others	All targets	
Pre-euro	0.218	0.041	0.487	2.449	0.405	0.440**	*-0.221*
N	134	16	42	3	47	108	
Run-up to the euro	0.214	-0.562	-0.367	2.146	1.175**	0.435	*-0.222*
N	102	7	32	7	28	74	
Post-euro	-0.717**	0.683	0.752*	1.000	0.348	0.653**	*-1.370***
N	335	36	93	22	59	210	
Total	**-0.331****	**0.361**	**0.471***	**1.387****	**0.541****	**0.553****	***-0.884****
N	**571**	**59**	**167**	**32**	**134**	**392**	

4.1.2.2. Diversified vs. focused mergers.

The sample is divided equally between focused and diversifying deals (449 deals in each subsample). Among the latter, investment companies comprise 16% and 6.6% belong to the insurance sector. Results (Table 5, panel B) show that focused deals result in insignificant losses around -0.0036% in the (-1;+1) event window surrounding the bid announcement. In contrast, the abnormal returns for bidders involved into diversifying bids are much higher (significant +0.9% for insurance targets, insignificant -0.086% for investment targets and insignificant negative -0.506% for deals with financial services companies). Considering the factor of the euro introduction, the only period that shows significant abnormal returns is the run-up period (average gain of +0.58%); while in the pre-euro period BHARs were almost equal to zero, and after the adoption of the euro the banks experiences average losses of almost -1%. Our findings are in line with Ekkayokkaya et al. (2009): diversifying deals are outperforming focused acquisitions in all analysed periods, except pre-euro period. Banks announcing focused deals experienced a significant loss (-0.679%) in the post-euro era, while generating gains of +1.356% in the run-up period. Summarising, these results testify that there was no significant difference in the abnormal returns in pre-euro period, although diversifying deals significantly outperformed focused deals in the run-up to euro and the post-euro periods. It allows me to conclude that the introduction of the euro motivated the banks to diversify more actively into segments of financial services (insurance asset management etc.), resulting in more value-gaining acquisitions. According to the estimation of market investors, the decision of bidder banks to diversify into other subsectors of the financial industry prior to the introduction of the euro is rewarded by higher returns in the period around the deal announcement.

4.1.2.3. Domestic vs. foreign acquisitions

This subsection tests the initial hypothesis of whether gains from the domestic acquisitions depend on the target's country of origin relatively to the bidder's country of origin in the pre-euro period, but not in the post-euro period. The comparison between domestic and cross-border deals is performed for the total sample (Table 6, panel A) and separately for the subsamples of focused and diversifying acquisitions (Table 6, panels B and C). Findings for the whole sample provide evidence that on average domestic mergers bring lower abnormal returns

than cross-border acquisitions (+0.08% and +0.204% respectively). These estimations are in contrast with the results obtained by Beitel et al. (2004) who revealed significant gains to domestic target bidders. Furthermore, gains for domestic bidders are much higher in the run-up period (significant +1.747%), while domestic bidders suffer insignificant losses in other periods. Interestingly, foreign bidders show insignificant positive abnormal returns in all the analysed periods. The above-mentioned results can be explained in the following way. During the period of pre-euro era, European banks accumulated important information on the market of banking services in other EU countries. Particularly, the wide speculations in the high government circles motivated banking institutions to anticipate decrease in the regulatory level. Further, banking sector experienced a "rush out" to enter foreign markets immediately after the official introduction of the euro. However, high competition decreased the positive outcomes of mergers that occurred after the adoption of the euro, resulting in the underperformance of the domestic takeovers.

Table 6. Abnormal returns of bidders by targets' country of origin and relatedness of business

Three days announcement period (−1 to +1) excess returns (in %) of European bank acquirers are reported for the sub-samples according to the geographic registration of the target (domestic and foreign) in general (panel A) and for focused (Panel B) and diversifying (Panel C) M&A's separately. The sub-sample periods are pre-euro (1990–95), the run-up to the euro (1996–98), and post-euro (1999–2004). Excess returns (AR) are adjusted for the market movement as in the following equation:

$$AR_i = r_i - r_m,$$

where r_i is the change in the share price of bidder *i* and r_m is the return on a representative market portfolio. Market return is estimated using the Datastream market index of the bidders' country. T-test of mean equal to zero versus not equal to zero is applied to examine the significance of the abnormal returns. '***', '**', '*' represent significance at 1%, 5% and 10% respectively.

Panel A: All bidders of domestic and foreign targets

Euro period	Domestic targets		Foreign targets		Domestic vs. foreign	
	Replication sample (1990-2004)	Sample of Ekkayokkaya et al. (2009)	Replication sample (1990-2004)	Sample of Ekkayokkaya et al. (2009)	Replication sample (1990-2004)	Sample of Ekkayokkaya et al. (2009)
Pre-euro	-0.138	0.115	0.101	0.685**	***-0.24***	***-0.570***
N	150	156	81	86		
Run-up to the euro	1.747***	0.597	0.618	-0.033	***1.129****	***0.630***
N	82	95	109	81		
Post-euro	-0.330	-0.309	0.039	-0.044	***-0.368***	***-0.264***
N	254	299	222	246		
Total	**0.080**	**-0.032**	**0.204**	**0.110**	***-0.124***	***-0.142***
N	**486**	**550**	**412**	**413**		

Table 6 (continued)

Panel B: Focused bidders broken down by targets' country of origin

Euro period	Domestic targets		Foreign targets		Domestic vs. foreign	
	Replication sample (1990-2004)	Sample of Ekkayokkaya et al. (2009)	Replication sample (1990-2004)	Sample of Ekkayokkaya et al. (2009)	Replication sample (1990-2004)	Sample of Ekkayokkaya et al. (2009)
Pre-euro	-0.223	-0.086	0.248	0.699**	***-0.471***	***-0.785***
N	55	82	47	52		
Run-up to the euro	2.624**	0.710	0.695	-0.345	***1.929****	***1.054***
N	37	54	71	48		
Post-euro	-0.957*	-0.992**	-0.416	-0.382*	***-0.541****	***-0.610***
N	116	184	123	151		
Total	**-0.126**	**-0.473**	**0.041**	**-0.151**	***-0.167***	***-0.322***
N	**208**	**320**	**241**	**251**		

Panel C: Diversifying bidders broken down by targets' country of origin

Euro period	Domestic targets		Foreign targets		Domestic vs. foreign	
	Replication sample (1990-2004)	Sample of Ekkayokkaya et al. (2009)	Replication sample (1990-2004)	Sample of Ekkayokkaya et al. (2009)	Replication sample (1990-2004)	Sample of Ekkayokkaya et al. (2009)
Pre-euro	-0.09	0.337	-0.102	0.663*	***0.012***	***-0.326***
N	95	74	34	34		
Run-up to the euro	1.025**	0.448	0.472	0.420	***0.553****	***0.028***
N	45	41	38	33		
Post-euro	0.198	0.785**	0.604*	0.493*	***-0.406***	***0.292***
N	138	115	99	95		
Total	**0.233**	**0.581****	**0.435**	**0.514****	***-0.201***	***0.067***
N	**278**	**230**	**171**	**162**		

Furthermore, results in the Panel B reveal similar trends for the subsample of focused deals. Interestingly, acquirers of the foreign targets suffer from negative abnormal returns during all three analysed periods, except the run-up period, when acquirers in average gained +2.62% from the merger deals. This can be explained by high competition between large financial institutions for the foreign target banks, giving quick access to other national markets. The observed pattern for domestic focused mergers is almost identical to the one reported in Panel A: a dramatic rise in the gains for the run-up to the euro period and fall during the post-euro period for focused bidders are present in the results. This phenomenon can be explained by high competition that reached its peak during the first several years immediately after the adoption of the euro, when European banks were trying to implement their plans for

strategic growth. The market investors considered the materialisation of the post-merger synergetic gains quite unlikely for the focused mergers.

The results for diversifying deals (panel C) shows significant positive BHARs to bidders of domestic targets in all investigated periods, except the pre-euro period. Domestic diversifying deals are significantly positive in the run-up period (+1.025%), while cross-border diversifying deals allow bidders to experience significant positive +0.604% in the post-euro period. Furthermore, the difference in returns for the acquirers of domestic and foreign targets is significant for the "run-up" period. Overall, the European banks gain more from diversifying bids (+0.233% for domestic bids and +0.435% for cross-border bids, comparing to the respective ARs of -0.126% and +0.041%). As a result, it can be concluded that some regulation barriers in the European banking sector still remain, and the involvement into the strategically promising cross-border deal is highly appreciated by the market investors. It can also be speculated that competition in the cross-border mergers is lower due to a number of various risks apart from eliminated exchange rate risk, resulting in higher abnormal returns.

4.1.2.4. Deals within the Eurozone versus outside the Eurozone

During last two decades, EU authorities attempted to reduce cross-border barriers and stimulate consolidation in the banking sector (Ekkayokkaya et al., 2009). Particularly, in the context of the introduction of the euro, the most obvious consequence for EU-15 countries is the difference between abnormal returns for bidders acquiring Eurozone targets or targets outside the Eurozone. This hypothesis relies on the presupposition that mergers inside and outside the currency union should differ substantially. The investigation on the role of Eurozone as a factor in the short-run merger outcomes for the banking bidders is provided below.

Table 7 presents announcement period abnormal buy-and-hold returns for four groups of M&A deals to reflect all possible configurations of mergers occurring in the EU:

1) bidder and target are both based in the Eurozone;

2) bidder is based outside the Eurozone; target originates from the Eurozone;

3) bidder is based in the Eurozone, the target is outside the Eurozone, but within the EU (namely UK, Sweden, Denmark);

4) bidder is based in the Eurozone; the target is outside the EU.

The findings testify that the Eurozone-based banks bidding for targets within the Eurozone experience losses in the both periods of pre-euro and post-euro eras, except for significant positive abnormal return for the Eurozone bidders acquiring the Eurozone targets (+1.49%) during the run-up to the euro period (1996-1998). The above-mentioned findings imply that the elimination of currency-related risk along with reduced regulatory barriers motivated the intensification in competition among bidder banks and resulted in higher merger premiums and lower returns to the bidders' shareholders in the period after the adoption of the common currency. Furthermore, non-Eurozone bidders outperform Eurozone bidders in all investigated periods except for run-up period, concluding upon the existence of tight competition over EU target banks in the European Union. On the other hand, non-Eurozone bidders experience significant gains around +0.43% on average and outperform Eurozone-based banks in general. These results support the initial implication by Ekkayokkaya et al. (2009), that although the Eurozone banking institutions possess strong competitive advantages and strong knowledge of the markets they are operating in, non-Eurozone banks are able to gain higher excess returns, probably because of less bureaucratized merger regulations in the UK, Denmark and Sweden. In other words, Scandinavian and British banks are able to demonstrate better competitive advantages to the market investors, resulting in higher abnormal returns and wealth gains for acquirers around the announcement date (in comparison with bidders based in the Eurozone). Additionally, more articulated differences between the markets of Eurozone members and the regulatory regimes can be the issue.

In contrast to the findings above, the EU banks acquiring targets from the UK, Denmark and Sweden) demonstrate significant positive abnormal returns (+0.4%). On average, bidders that are involved in takeovers of non-EU targets demonstrate the highest wealth gains (almost +0.66%), primarily because of the fact, that expansion into emerging economies is considered by the market investors as a positive strategic signal. These results support the initial hypotheses by Ekkayokkaya et al. (2009). Firstly, the acquisitions of the Eurozone targets were more profitable in the pre-euro period (1990-1995), than in the post-euro period (1999-2004)(-0.17% and -0.43% respectively, although the results are insignificant). Interestingly, the particular "run-up" effect was definitely observed in 1996-1998, when a specifically positive post-

merger behaviour was observed, resulting in average +1.36% gains for the acquirers. This finding can be the indirect evidence that banks anticipated the introduction of the euro and subsequent intensification in competition, thus aiming to finalise the merger deals before final adoption of the common currency. Secondly, the short-run gains for the bidders acquiring EU targets are less than short-run gains for the acquirers of the non-Eurozone and non-EU targets. This finding also can be explained by the growth in competition after the introduction of the euro.

Table 7. Abnormal returns of bidders broken down by target's belonging to the Eurozone

Three days announcement period (−1 to +1) excess returns (in %) of European bank acquirers are reported according to the criteria of target registration in the Eurozone; in the EU, but not in the Eurozone; or outside the EU. The sub-sample periods are pre-euro (1990–95), the run-up to the euro (1996–98), and post-euro (1999–2004). Excess returns (AR) are adjusted for the market movement as in the following equation:

$$AR_i = r_i - r_m,$$

where r_i is the change in the share price of bidder *i* and r_m is the return on a representative market portfolio. Market return is estimated using the Datastream market index of the bidders' country. T-test of mean equal to zero versus not equal to zero is applied to examine the significance of the abnormal returns. '∗∗', '∗' represent significance at 5% and 10% respectively.

Panel A. Replication sample (1990-2004)

	Targets in the Eurozone			**Targets outside the Eurozone**			
Euro period	**Bidders from the Eurozone**	**Bidders from the EU, but outside the Eurozone**	**All**	**Bidders in the Eurozone, EU targets outside Eurozone**	**Bidders in the Eurozone, Non-EU targets**	**All**	**All targets**
Pre-euro	-0.274	1.220	**-0.17**	-0.24	0.468	**0.191**	**-0.054**
N	146	11	**157**	29	45	**74**	**231**
Run-up to the euro	1.488***	-0.639	**1.361*** **	0.451*	1.650	**0.899**	**1.102** **
N	79	5	**84**	67	40	**107**	**191**
Post-euro	-0.44	-0.062	**-0.43**	0.127	0.328	**0.221**	**-0.158**
N	270	7	**277**	106	93	**199**	**476**
Total	**-0.083**	**0.426***	**-0.061**	**0.182** **	**0.661**	**0.406***	**0.137**
N	**495**	**23**	**518**	**202**	**178**	**380**	**898**

Table 7. (continued)

Panel B. Sample by Ekkayokkaya et al. (2009)

Euro period	Targets in the Eurozone			Targets outside the Eurozone			
	Bidders in the Eurozone	Bidders from the EU, but outside the Eurozone	All	Bidders in the Eurozone, EU targets outside Eurozone	Bidders in the Eurozone, Non-EU targets	All	All targets
Pre-euro	0.004	1.937**	**0.189**	0.529	0.395	**0.482***	**0.317***
N	123	13	**136**	69	37	**106**	**242**
Run-up to the euro	-0.121	-0.165	**-0.125**	1.614*	0.119	**0.658***	**0.307**
N	72	7	**79**	35	62	**97**	**176**
Post-euro	-0.524*	-0.433	**0.522***	0.343	0.225	**0.266**	**-0.189**
N	306	9	**315**	79	151	**230**	**545**
Total	**-0.337***	**0.694**	**-0.028**	**0.656****	**0.224**	**0.407****	**0.029**
N	**501**	**29**	**530**	**183**	**250**	**433**	**963**

4.1.3. Regression analysis

Further, following Ekkayokkaya et al. (2009), additional investigation had to be performed to provide a comprehensive analysis of buy-and-hold abnormal returns around the announcement date for bank M&As, taking into consideration a set of additional variables, particularly the payment type (cash/shares), acquisition types (domestic/cross-border; focused/diversified), target listed status. The factors of deal value, relative size and market return on the announcement date are included in the regression analysis. Furthermore, the dummies for periods of excessively low (1992, 2000, 2001, 2002) and high market returns (1993, 1998, 2003) are introduced as well. The cross-sectional framework is deployed. The key idea is to regress bidders' buy-and-hold returns R_i around the announcement date to the set of explanatory variables X_i. R_i is the 3-day holding period return of the bidder i and the constant α represents the average excess returns to bidders after controlling for the effects of the explanatory variables. Control variables that are included into vector X_i are presented in Table 8.

Table 8. Factors affecting bidders' gains.

Three days announcement period (−1 to +1) returns (in percentage) of European banks engaged in takeover bids are regressed against a set of explanatory variables in a cross-sectional framework as in the following equation.

$$R_i = \alpha + \sum_{i=1}^{N} X_i + \varepsilon_i$$

R_i is the 3-day holding period gross return of the bidder from bid i. The vector of explanatory variables X_i includes market return around the announcement of bid, two dummies representing the methods of payment (cash and shares) used in the deal. Further dummy variables included in the model represent diversifying versus focused acquisitions, listed versus unlisted targets, bidders and targets are from the Eurozone, and domestic versus foreign targets. Two further dummies are included to represent the years of abnormally low (1992, 2000, 2001 and 2002) and abnormally high stock market returns (1993, 1998 and 2003) to control for their possible implications. Regression is estimated using a robust procedure that controls for potential effects of outliers in the dataset. The equation is estimated for three subsamples and the full sample: the full sample period (1990–2004), pre-euro period (1990–95), run-up to the euro period (1996–98) and post-euro period (1999–2004). The constant α represents average excess returns of bidders after controlling for the effects of the explanatory variables. '***', '**', '*' represent significance at 1%, 5% and 10% respectively.

Variables	Replication sample (1990-2004)				Sample by Ekkayokkaya et al. (2009)			
	All periods	Pre-euro	Run-up to the euro	Post-euro	All periods	Pre-euro	Run-up to the euro	Post-euro
Constant	0.154	-0.022	-0.713	0.381	1.119	1.622	1.064	0.183
Market return	0.138*	0.459***	-0.158	0.010	0.942**	1.146**	1.227**	0.815**
Cash deal	-0.297	0.009	-0.851	-0.248	0.881	0.928	0.545	0.912
Shares deal	0.557	3.234**	-0.096	0.008	-0.088	0.740	-0.179	-0.314
Relative deal size	-0.001	-2.106***	-0.052	0.056	0.162**	0.138	0.233	0.167*
Deal value	0.027	-0.003	0.397***	-0.015	-0.210**	-0.303**	0.203	-0.288**
Focused deal	-0.198	0.469	-0.301	-0.536*	0.524*	0.082	0.340	0.843**
Listed target	-0.152	-0.004	0.693	-0.391	-0.097	-0.022	-0.954*	0.145
Eurozone bidder and target	0.335	0.415	-0.125	0.263	-0.399*	-0.157	-1.370	-0.340
Domestic target	-0.198	-0.377	-0.580	-0.030	-0.078	-0.415	1.351	-0.227
Interaction (shares × listed target dummy)	-0.813	-2.984**	-0.443	-0.697	-0.773	-1.018	-0.197	1.019
Years of high market returns	0.066	-0.063	-0.238	-0.003	0.086	0.605	0.595	-0.472
Years of low market returns	-0.180	0.009		0.058	-0.116	-0.061		-0.299
Adjusted R^2	2.04	6.8	7.9	3.8	25.72	31.56	44.83	19.30
N	878	219	190	469	912	232	165	515

The obtained results differ from the initial findings by Ekkayokkaya et al. (2009). As can be seen from Table 8, the estimates for the total replication sample failed to show significant influence of the deal value, relative size and

focused/diversified type of merger (in contrast to Ekkayokkaya et al., 2009). The only variable with significance in line with the results by Ekkayokkaya et al. (2009) is market return, which is positively correlated with the expected abnormal buy-and-hold return, implying that the periods of abnormal market growth result in higher gains to the acquirers. There can be several possible explanations considering the discrepancies between the results for replications sample and the findings by Ekkayokkaya et al. (2009). Firstly, as was mentioned previously, the database-related differences in selected merger deals and probable omission of other criteria by Ekkayokkaya et al. (2009)(including government-sponsored acquisitions, minimum equity stake etc.) resulted in different sample, containing other banks. Secondly, the differences in the final estimates and their significance can also originate from the changes in Thomson Reuters' approach to measure Datastream Market index (utilised in Ekkayokaya et al., 2009 and this chapter as a benchmark to measure abnormal returns).

Considering other obtained results, the model provides strong evidence in favour of the positive correlation between the deal value and excess returns in the periods of 1996-1998, implying that larger deals were more likely to benefit from size and scope effect in the pre-euro period, resulting in higher gains to the shareholders' wealth. It is also possible co conclude that the adoption of the European common currency caused a downward pressure on the short-run abnormal returns for focused banking mergers in 2000-2004, as the competition for the banking assets intensified. Additionally, it is also possible to confirm, that overvaluation-driven mergers result in much lower abnormal returns (as was initially found in Cybo-Ottone and Murgia (2000), Ismail and Davidson (2005) and other researchers), as the coefficient of "interaction" variable is negative and significant. In the analysis of the post-euro period, another factor, that is significant and negatively correlated with the bidders' BHARs, is the diversification status of the merger deal – focused acquisitions seem to destroy bidders' value. Overall, although our estimates are different to the findings by Ekkayokkaya et al. (2009) for the total sample, it is still possible to conclude from the regression analysis that the introduction of the euro played a negative role in the short-run wealth gains for the bidders involved in M&A's in 1999-2004. Market movements and the deal value can also be considered as a crucial factor in determining short-run merger success or failure.

4.2. Extended sample (1990-2015)

The previous subsection replicated the study by Ekkayokkaya et al. (2009) in an attempt to re-test the set of hypothesis defining the influence of the introduction of the euro on the market of the European banking M&A's. The adoption of the common currency was only one of the specific features of the last two decades, which were characterised by deregulation, technology development and consolidation of the market. These positive changes were also driving factors of the global growth in the M&A activities (in both volume and number of the deals), often referred to as "merger waves" (Gugler et al., 2012). The European financial sector experienced two large increases in merger activities: 1992-2000 and 2002-2007, which coincided with 5th and 6th global merger waves respectively. Both these waves came to an end because of the financial crises: the "dot.com" bubble in 2001-2002 and the global financial crisis in 2007-2009. Thus, it would be logical to conclude that merger activities are exposed to powerful external shocks of industry-wide scope, that influence the number and volume of the mergers. In a broader sense, the paper of Ekkayokkaya et al. (2009) follows this approach, studying the impact of external shock (introduction of the euro) on the merger outcomes for bidder banks in the European Union. It would be interesting to apply the same framework to the recent global financial crisis (2007-2009) and to investigate its influence on the bidders' wealth after the M&A's.

There are several reasons why studying the financial crisis and its connections with mergers can be advantageous for researchers. Theoretically, M&A's during the crisis should be finalised by strong banks due to the liquidity shortage. Thus, two possible hypotheses can be made, following Beltratti and Paladino (2013). Firstly, positive changes in the shareholders' wealth should be easier to detect, as takeovers are executed with lower premiums and stock prices. Furthermore, only strong and financially stable banks can afford strategic growth during financial crisis – thus market has to anticipate easier post-merger target integration and materialisation of the synergy gains (Berger and Bouwman, 2009). Secondly, potential buyers were cautious due to opacity in banks' assets and high levels of market uncertainty. As a result, it can be hypothesised that the market should reward higher the deals that were finalised under such an adverse market conditions.

Another aspect that should be mentioned in the context of this subsection is the enlargement of the EU. Several waves of enlargement incorporated 28 states into the European Union. Theoretically, the harmonisation of the financial sector and better supervision should have been the natural consequences of these processes. Although banking systems of the EU members have different size, regulation systems and efficiency levels, all of them can be considered in their entirety, as any member of the EU fulfilled the set of so-called "Copenhagen criteria" prior to the joining, which required from the candidates to reach high standards of economy and financial sector. Furthermore, the strategy to become the EU members and to fulfil the necessary criteria was adopted in the mid-1990s in the majority of countries that joined in 2005 and 2007. For instance, the application to the EU was submitted by Malta and Cyprus in 1990, Poland and Hungary in 1994, by Slovakia, Estonia, Latvia, Lithuania, Bulgaria and Romania – in 1995, by Slovenia and Czech Republic – in 1996. It was obvious that the strategic vector of development was directly oriented to be incorporated into the European financial system. Thus, because of the above-mentioned factors and due to economic and social similarities, it would be also crucial to consider the EU as a common area of merger activities and to study M&A's during the whole interval between first attempts to harmonise financial sector and modern days (in other words, between 1990 and 2015). No studies in the field of M&A's have assessed the scope of EU-28 previously.

4.2.1. Sample and data characteristics

Consequently, following the approach taken by Ekkayokkaya et al. (2009), the sample is constructed according to the similar principles: all banking M&A deals for the members of the EU-28 were collected (instead of the EU-15 format). Data was collected from Thomson Financial and Datastream for the period of 01.01.1990 and 31.12.2015. 1479 deals with full deal-related and stock data survived the filtering procedures. To capture the impact of the global financial crisis on the M&A outcomes in the broad configuration of the European Union (EU-28), the sample was split into four periods: the period of initial growth (1990-2000), pre-crisis period (2001-October 2007), the period of the financial crisis (November 2007-December 2009), post-crisis period (2010-2015)(according to the crisis-related periodization mentioned by Saccomanni, 2011). With respect to the periodization mentioned above, it would be possible to distinguish between various periods in the European

financial history and to compare the short-term outcomes for the mergers in different market conditions.

Table 9 shows the distribution of M&A activities of the bidder banks by the country where they are headquartered. The cross-tabulation table of deals allows concluding that most of the sample bids are announced by banks based in Italy (303), Spain (253), UK (172), Germany (152) and France (139). The data further shows that Slovenia and Malta have the least active M&A markets (1 bidder and 2 targets and 1 bidder and 4 targets respectively), while Italy and Spain underwent the most active consolidation (303 and 252 bidders originated from these states respectively).

Table 9. Distribution of sample deals by bidders' and targets' countries of origin (extended sample, 1990-2015).

The table shows the geographical distribution of sample bids announced by banks based within the European Union-28 (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the UK, and Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria, Romania and Croatia) in 1990–2015. New EU members include the 13 countries that joined the EU on 1 May 2004, 1 January 2007 and 1 January 2013: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria, Romania and Croatia. A bidder is included in the sample if it is categorised as a bank in the SDC database, is listed on a stock exchange in one of the 28 European member countries, and has participated in the M&A activities between 01.01.1990 and 31.12.2015.

	Target Nation																													
Acquirer Nation	**AT**	**BE**	**BG**	**CRO**	**CY**	**CZ**	**DN**	**EST**	**FIN**	**FR**	**GER**	**GR**	**HUN**	**IRL**	**IT**	**LV**	**LT**	**LUX**	**MLT**	**NED**	**POL**	**PT**	**RO**	**SK**	**SLO**	**SP**	**SW**	**UK**	***New EU***	***Outside EU***	**Total**
AT	3	0	0	3	0	3	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	0	2	2	1	0	0	0	*14*	*9*	**27**
BE	0	17	0	0	0	0	0	0	0	7	0	0	0	2	1	0	0	1	0	3	2	2	0	0	0	0	0	4	*2*	*15*	**54**
BG	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*2*	*2*	**4**
CRO	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*1*	*1*	**2**
CY	0	0	0	0	6	0	0	1	0	0	0	2	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	*9*	*4*	**15**
CZ	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	*8*	*0*	**8**
DN	0	0	0	0	0	0	29	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	*1*	*2*	**36**
EST	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*2*	*0*	**2**
FIN	0	1	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	*0*	*0*	**8**
FR	0	1	1	1	0	0	1	0	0	97	0	3	0	0	10	0	0	0	0	1	1	1	0	0	0	3	1	1	*3*	*17*	**139**
GER	1	1	0	0	0	0	0	0	0	9	52	2	0	1	8	0	0	1	0	2	12	0	0	0	0	10	0	7	*12*	*46*	**152**
GR	0	0	4	0	2	0	0	0	0	0	0	45	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	*9*	*16*	**70**
HUN	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	*5*	*6*	**11**
IRL	1	0	1	0	0	0	0	1	0	1	1	0	0	8	0	0	0	0	0	0	4	0	0	0	0	0	0	3	*6*	*8*	**28**
IT	1	0	0	2	0	0	0	0	0	2	6	0	1	0	261	0	0	4	0	0	1	0	1	3	0	5	0	1	*8*	*15*	**303**
LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	*4*	*1*	**5**
LUX	0	0	0	0	0	0	0	0	0	5	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	3	0	0	*0*	*0*	**11**
MLT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*0*	*1*	**1**
NED	0	2	0	0	0	0	0	0	0	0	1	0	1	0	4	0	0	0	0	6	0	2	0	0	0	0	0	2	*1*	*23*	**41**
POL	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	31	0	0	0	0	0	0	0	*32*	*1*	**33**
PT	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	2	26	0	0	0	4	0	0	*2*	*2*	**37**
SLO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*0*	*1*	**1**
SP	0	0	0	0	0	0	0	0	0	3	2	0	0	0	5	0	0	0	0	0	2	11	0	0	0	115	1	5	*2*	*109*	**253**
SW	0	0	0	0	0	0	10	7	4	0	1	0	0	0	0	5	3	0	0	0	3	0	0	0	0	1	19	0	*18*	*13*	**66**
UK	0	0	0	0	0	0	0	0	0	8	2	0	0	3	5	0	0	0	3	1	0	3	0	0	0	9	2	81	*3*	*55*	**172**
Total	**6**	**22**	**9**	**8**	**8**	**10**	**40**	**11**	**11**	**132**	**67**	**54**	**5**	**14**	**295**	**5**	**7**	**6**	**4**	**15**	**61**	**45**	**8**	**6**	**2**	**150**	**26**	**105**	***144***	***347***	**1479**

Table 10. Sample characteristics.

Bids announced by banks based within the European Union (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, the UK, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria, Romania and Croatia) during 1990–2015 are included in the sample. The sample ensures that the bidder is categorised as a bank in the Thomson SDC database, listed on a stock exchange in one of the 28 European member countries, bidders' share price is available from Datastream, and the value of the takeover deal is at least $1 million. For a given deal, the deal value is reported in US dollars.

Panel A. Distribution of deals by bidder's nation.

	Bidders on domestic targets			**Bidders on foreign targets**			**All bidders**		
	Listed	**Unlisted**	**Total**	**Listed**	**Unlisted**	**Total**	**Listed**	**Unlisted**	**Total**
Initial growth	148	208	**356**	140	164	**304**	288	372	**660**
Pre-crisis	75	159	**234**	105	172	**277**	180	331	**511**
Financial crisis	29	31	**60**	31	34	**65**	60	65	**125**
Post-crisis	36	83	**119**	26	38	**64**	62	121	**183**
Total	**288**	**481**	**769**	**302**	**408**	**710**	**590**	**889**	**1479**

Panel B. Summary statistics by bidder's nation.

	Domestic bidders			**Foreign bidders**			**All bidders**		
	Mean	*Median*	*St.Dev.*	*Mean*	*Median*	*St.Dev.*	*Mean*	*Median*	*St.Dev.*
Shares acquired (%)	**53.19**	50	38.12	**52.36**	50	39.52	**52.79**	50	38.80
Deal Value (in $ million)	**662.32**	83.33	2506.88	**457.68**	119.98	1232.1	**564.08**	103.31	2001.05
MV of bidders (in million $)	**12244.5**	4184.74	20301.9	**24951.2**	12724.4	29263.0	**18331.8**	7705.14	25784.8
Raw return (-1;+1) in days (%)	**-0.04**	0.06	0.06	**0.20**	0.17	0.05	**0.07**	0.11	0.05
Raw return (-20;+20) in days (%)	**0.82**	1.07	0.19	**0.36**	1.77	0.22	**0.60**	1.55	0.21

Table 10, Panel A demonstrates the approximate parity between domestic and cross-border M&A's (769 and 710 deals respectively). Concerning the deal-related characteristics of the sample, it was found that domestic mergers are larger than cross-border ($662.32 million and $457.68 million respectively). Further, as was initially expected, it can be confirmed that foreign M&A's are fulfilled by larger bidders (primarily due to wider range of risks connected to the international financial expansion and larger resources): an average market value of a domestic bidder is almost $12.2 billion, whereas average market value of the acquirers involved in cross-border takeovers is almost $24.9 billion. After comparison with the sample characteristic in Ekkayokkaya et al. (2009), it can be also concluded that both average deal value and acquirer size are higher in extended sample – the volume and number of banking M&A's experienced growth in 2004-2015 ($330 million for the period of 1990-2004 and $564 million for the period of 1990-2015).

4.2.2. Empirical results

Following and extending the study by Ekkayokkaya et al. (2009), the subsequent part of the chapter provides the empirical results. Following the initial paper by Ekkayokkaya et al. (2009), the short-run behaviour of the abnormal returns around the announcement date is studied, involving investigation of the key deal-related aspects – geographic factor (domestic/cross-border), merger type (focused/diversified) and the factor of the Eurozone. The findings would give a chance to compare the merger outcomes between periods, and, importantly, to establish whether M&A's during the financial crisis are value-creating for the acquirers.

4.2.2.1. The impact of the financial crisis on the changes in bidders' shareholders' wealth

Table 11 demonstrates announcement period abnormal returns for all bidders divided by the listing status criteria. As the findings show, it is possible to conclude that on average, gains from banking M&A's are indistinguishable from zero for the acquirers, as average BHAR is approximately -0.062% in the (-1;+1) event window around the announcement date. Furthermore, the acquisition of both listed and unlisted target produces almost no results for the short-term merger performance: the changes in bidders' shareholders' wealth insignificant and close to zero (-0.07% and -0.057% respectively). Further, it was found that on average the banking M&A

during the financial crisis are value-destroying for the bidders merging with both listed and unlisted targets)(-1.5% for bidders acquiring listed targets and -0.79% for the bidders acquiring private targets). This is in line with findings by Beltratti and Paladino (2013), confirming the idea of an extremely pessimistic and sceptical attitude of market investors towards strategic growth during the periods of crisis.

The evidence does not confirm the results in Cybo-Ottone and Murgia (2000) and Lensink and Maslennikova (2008), who testified that acquisitions of the unlisted are more value-destroying for the bidders. The estimates of our sample show that difference for bidders between listed and unlisted targets is insignificant in all periods except the financial crisis, when private targets generated lower wealth losses for the acquirers (-0.795% comparing with -1.526% for mergers with public targets) and others.

Table 11. Excess returns of European banks by target status.

Three days announcement period (−1 to +1) excess returns (in %) of European bank acquirers are reported by sub-sample periods and according to the criteria of the target listed status (unlisted and listed). The sub-sample periods are initial growth period (1990-2000) pre-crisis (2001-Aug 2007), the financial crisis (Sept 2007-2009), and post-crisis (2010–2015). Excess returns (AR) are adjusted for the market movement as in the following equation:

$AR_i = r_i - r_m$,

where r_i is the change in the share price of bidder *i* and r_m is the return on a representative market portfolio. Market return is estimated using the Datastream market index of the bidders' country. T-test of mean equal to zero versus not equal to zero is applied to examine the significance of the abnormal returns. '***' '**', '*' represent significance at 1%, 5% and 10% respectively.

Euro period	Target status		All targets
	Listed	Unlisted	
Initial growth	0.299	0.193	**0.239**
N	288	372	**660**
Pre-crisis	-0.012	-0.253	**-0.164**
N	180	331	**511**
Financial crisis	-1.526	-0.795*	**-1.146****
N	60	65	**125**
Post-crisis	-0.576	0.103	**-0.127**
N	62	121	**183**
Total	**-0.070**	**-0.057**	**-0.062**
N	**590**	**889**	**1479**

4.2.2.2. Diversification vs. focused acquisitions.

Industrial relatedness is considered as one of the factors influencing the bidders' abnormal returns in the short run. The sample includes almost an equal number of focused and diversifying deals (742 and 737 deals respectively). It is worth mentioning that the term "diversifying" is considered as applicable only to the financial industry, ignoring non-financial companies. Thus, for instance, a merger between a bank and an insurance company is considered as "diversifying", while

only bank-to-bank takeovers are considered focused. Among the diversified deals, almost 6.3% of targets are insurance companies, 6.9% - investment firms, 15.7% belong to the financial services subsector. The results testify that focused bidders result in negative abnormal results of -0.288% on average, whereas diversifying mergers bring insignificant gains of almost +0.165%. Interestingly, the larger abnormal returns for the acquirers are gained in the mergers with insurance companies (+0.51%) and investment companies (significant +0.809%).

Considering the factor of the financial crisis, the findings provide important insights. First, on average, focused deals resulted in losses of almost -0.64% in 2007-2009, while diversified deals bring abnormal returns almost close to zero (+0.04%). Furthermore, diversified mergers outperform focused acquisitions in all sub-periods except the financial crisis (focused deals result in losses of almost -0.74%, while diversifying mergers are value-destroying by almost -1.5% in 2007-2009). The possible explanations can be based on the assumption that markets are awarding the diversification into the subsectors other than banking during the non-crisis periods, but the period of the crisis requires the decisions of the minimal risk, thus resulting in lower losses from focused deals. Secondly, the bidders acquiring investment companies were able to demonstrate remarkable gains of +1.5% to the bidders' shareholders' wealth during the period of the financial crisis (2007-2009), being the only subsector able to result in value growth after the M&A's. The most probable reason is following: the market considered the decision to diversify into the subsector of investment companies as a positive sign and anticipated valuable future synergy gains. In other words, as the banking industry, financial services companies and insurance companies were suffering from severe liquidity shortages and "bad assets" on their balance sheets, the investments companies were considered by investors as relatively successful subsector. Summarising, these findings show that the period of the financial crisis was especially value-destroying for all types of the merger deals.

Table 12. Excess returns of European banks by relatedness of business.

Three days announcement period (−1 to +1) excess returns (in %) of European bank acquirers are reported by sub-sample periods and according to the criteria of the diversification status (focused and diversifying). The sub-sample periods are initial growth period (1990-2000) pre-crisis (2001-Aug 2007), the financial crisis (Sept 2007-2009), and post-crisis (2010–2015). Excess returns (AR) are adjusted for the market movement as in the following equation:

$AR_i = r_i - r_m$,

where r_i is the change in the share price of bidder *i* and r_m is the return on a representative market portfolio. Market return is estimated using the Datastream market index of the bidders' country. T-test of mean equal to zero versus not equal to zero is applied to examine the significance of the abnormal returns. '***' '**', '*' represent significance at 1%, 5% and 10% respectively.

Euro period	Focused deals (bank-bank)	Diversifying deals					Focused - Diversified
		Insurance	Investments	Financial Services	Others	All diversifying targets	
Initial growth	0.157	1.050**	0.086	-0.106	0.418	**0.320***	***-0.163***
N	327	49	32	101	151	**333**	
Pre-crisis	-0.585***	0.804	0.977	0.132	-0.047	**0.276**	***-0.861***
N	261	27	41	88	94	**250**	
Financial crisis	-0.74	-2.548	1.517	-1.055**	-2.613	**-1.546***	***0.806****
N	62	8	12	11	32	**63**	
Post-crisis	-0.724	-0.488	1.239	1.022	-0.216	**0.477**	***-1.201****
N	92	10	18	32	31	**91**	
Total	**-0.288**	**0.510**	**0.809***	**0.095**	**-0.103**	**0.165**	***-0.676***
N	**742**	**94**	**103**	**232**	**308**	**737**	

4.2.2.3. Domestic vs. foreign acquisitions

Further, attention should be focused on the domestic and cross-border acquisitions and the difference in the short run post-merger outcomes between them in the. Primarily, the initial goal was to establish whether domestic M&A's outperforms cross-border takeovers and whether this is true for the period of the financial crisis. The results for the total sample are listed in Table 13, Panel A for focused and diversifying mergers in Table 13, Panels B and C respectively. It was found that BHARs for both domestic and cross-border M&A's are close to zero on average. Interestingly, abnormal returns are higher for the cross-border deals in1990-2001 and 2007-2009, whereas the periods of 2001-2006 and 2010-2015 resulted in higher CARs for the domestic takeovers. It is noteworthy, that cross-border merger outperformed domestic M&A's during the financial crisis, although both acquisition types resulted in value destruction for the acquirers' shareholders. These findings support the previous results that testify general deterioration of the M&A's performance in the banking sector in 2007-2009. Negative abnormal returns primarily provide evidence that market investors tend to assess negatively the attempts to grow extensively by being involved in M&A during the period of the

economic downturn, and estimating cross-border takeovers in especially sceptical manner.

Table 13. Abnormal returns of bidders by targets' country of origin and relatedness of business.

Three days announcement period (−1 to +1) excess returns (in percentage) of European bank acquirers are reported by sub-sample periods and according to the criteria of geographic location (domestic and foreign) for total sample (panel A) and for focused (panel B) and diversified mergers (panel C) separately. The sub-sample periods are initial growth period (1990-2000), pre-crisis (2001-Aug 2007), the financial crisis (Sept 2007-2009), and post-crisis (2010–2015). Excess returns (AR) are adjusted for the market movement as in the following equation:

$AR_i = r_i - r_m$,

where r_i is the change in the share price of bidder *i* and r_m is the return on a representative market portfolio. Market return is estimated using the Datastream market index of the bidders' country. T-test of mean equal to zero versus not equal to zero is applied to examine the significance of the abnormal returns. '***' '**', '*' represent significance at 1%, 5% and 10% respectively.

Panel A: All bidders of domestic and foreign targets

Euro period	Domestic targets	Foreign targets	Domestic vs. foreign
Initial growth	0.197	0.290	***-0.093***
N	356	304	
Pre-crisis	-0.148	-0.178	***0.03***
N	234	277	
Financial crisis	-1.467**	-0.85	***-0.616****
N	60	65	
Post-crisis	-0.017	-0.332	***0.315***
N	119	64	
Total	**-0.071**	**-0.053**	***-0.018***
N	**769**	**710**	

Panel B: Focused bidders broken down by targets' country of origin

Euro period	Domestic targets	Foreign targets	Domestic vs. foreign
Initial growth	-0.014	0.293	***-0.307***
N	145	182	
Pre-crisis	-0.548*	-0.61**	***0.063****
N	103	158	
Financial crisis	-2.025**	0.546	***-2.572****
N	31	31	
Post-crisis	-0.701	-0.771	***0.07***
N	61	31	
Total	**-0.482**	**-0.124**	***-0.358***
N	**340**	**402**	

Panel C: Diversifying bidders broken down by targets' country of origin

Euro period	Domestic targets	Foreign targets	Domestic vs. foreign
Initial growth	0.341	0.284	***0.057***
N	211	122	
Pre-crisis	0.166	0.397	***-0.23***
N	131	119	
Financial crisis	-0.869	-2.123	***1.254***
N	29	34	
Post-crisis	0.703	0.081	***0.622***
N	58	33	
Total	**0.255**	**0.040**	***0.215***
N	**429**	**308**	

Furthermore, results in the Panel B reveal that focused M&A's were value-destroying for the bidders' value in nearly all analysed periods for both domestic and

international acquisitions (with the only exception of focused cross-border deals during the financial crisis, which resulted in BHARs of almost +0.546%). This interesting finding provides evidence that the process of geographical diversification is highly encouraged by the market, allowing companies to benefit from the market presence in several regulation regimes. Simultaneously, the market is quite sceptical to the bank-to-bank mergers within one country, as only further losses due to the macroeconomic instability can be expected, especially during the period of the financial crisis. Considering the subsample of diversifying deals with respect to the financial crisis, it was found that domestic acquisitions outperform cross-border deals in all periods except pre-crisis (2001-2006)(this period is widely characterised as the largest M&A boom in the EU, when plenty of banks decided to expand into other subsectors of the financial industry (Lensink and Maslennikova, 2008)). The conclusion can be following: it is more economically promising (from the market investors' point of view) to be involved in focused international mergers (international risks were considered to be lower than risks connected to industrial relatedness), whereas during the post-crisis period it is more profitable to be involved in domestic diversifying mergers (international risks are considered to be higher than risks connected to industrial relatedness).

4.2.2.4. Deals within the Eurozone versus outside the Eurozone

The classification identical to the one in Ekkayokkaya et al. (2009) and to the one used in the previous chapter is implemented in this part of the thesis. Table 14 shows announcement period abnormal returns separately for four groups for M&A's: bidder and target based in the Eurozone; bidder based outside the Eurozone, target within the Eurozone; target outside the Eurozone but within the EU; target outside the EU.

Firstly, Eurozone-to-Eurozone mergers are value-destroying or resulting in zero abnormal returns in all periods, peaking to almost -1.269% in 2007-2009. Secondly, the mergers between Eurozone targets and non-Eurozone bidders are value-enhancing in pre-crisis and post-crisis period, however resulting in disastrous -5.8% losses for the acquirers during the financial crisis. This finding enables to conclude that the attempt to buy Eurozone-based target by a bank from the UK, Denmark or Sweden during the financial crisis was considered as a strategic failure (primarily because of situation when a bank from more stable environments (EU

countries outside the Eurozone) enters the less stable market (Eurozone)). On the other hand, the acquisitions of targets from the above-mentioned countries were resulting in significant +2.317% for the bidders from the EU, which demonstrates the differences in the regulation and merger control between Eurozone and non-Eurozone countries. This positive market reaction can also be connected to the post-crisis attempts to diversify internationally by entering the markets that are independent of the negative consequences of the pan-EU recession. However, all types of mergers destroy acquirers' value (if mergers of the fifth global wave (2001-2007) and the further periods (2007-2009 and 2010-2015) are considered).

Table 14. Abnormal returns of bidders broken down by target's belonging to the Eurozone

Three days announcement period (−1 to +1) excess returns (in percentage) of European bank acquirers are reported by sub-sample periods and according to the criteria of target registration in the Eurozone; in the EU, but not in the Eurozone; and outside the EU. The sub-sample periods are initial growth period (1990-2000), pre-crisis (2001-Aug 2007), the financial crisis (Sept 2007-2009), and post-crisis (2010–2015). Excess returns (AR) are adjusted for the market movement as in the following equation:

$AR_i = r_i - r_m$,

where r_i is the change in the share price of bidder *i* and r_m is the return on a representative market portfolio. Market return is estimated using the Datastream market index of the bidders' country. T-test of mean equal to zero versus not equal to zero is applied to examine the significance of the abnormal returns. '***' '**', '*' represent significance at 1%, 5% and 10% respectively.

Euro period	Targets in the Eurozone		All	Targets outside the Eurozone		All	All targets
	Bidders in the Eurozone	Bidders outside the Eurozone		EU targets outside Eurozone	Non-EU targets		
Initial growth	0.054	0.401	**0.075**	0.732*	0.029	**0.437***	**0.239**
N	338	22	**360**	174	126	**300**	**660**
Pre-crisis	-0.144	0.184	**-0.13**	-0.631	-0.095*	**-0.201**	**-0.164**
N	257	11	**268**	75	168	**243**	**511**
Financial crisis	-1.269**	-5.816	**-1.545****	-1.049	-0.558	**-0.700**	**-1.146****
N	62	4	**66**	17	42	**59**	**125**
Post-crisis	-0.302	1.692	**-0.245**	2.317**	-0.81	**0.032****	**-0.127**
N	102	3	**105**	21	57	**78**	**183**
Total	**-0.169**	**-0.184**	**-0.170**	**0.386****	**-0.172**	**0.064**	**-0.062**
N	**759**	**40**	**799**	**287**	**393**	**680**	**1479**

4.2.3. Regression analysis

Following the study by Ekkayokkaya et al. (2009), an additional investigation is performed to study the role of the factors that contribute to the short-run post-merger performance around the announcement date. A set of variables, identical to the previous chapter and Ekkayokkaya et al. (2009), is deployed.

Table 15. Factors affecting bidders' gains.

Three days announcement period (−1 to +1) returns (in percentage) of European banks engaged in takeover bids are regressed against a set of explanatory variables in a cross-sectional framework as in the following equation:

$$R_i = \alpha + \sum_{i=1}^{N} X_i + \varepsilon_i$$

R_i is the 3-day holding period gross return of the bidder from bid i. The vector of explanatory variables X_i includes market return around the announcement of bid, two dummies representing the methods of payment (cash and shares) used in the deal. Further dummy variables included in the model represent diversifying versus focused acquisitions, listed versus unlisted targets, bidders and targets are from the Eurozone, and domestic versus foreign targets. Two further dummies are included to represent the years of extremely low (1992, 2000, 2001, 2002, 2008 and 2011) and extremely high stock market returns (1993, 1998, 2003, 2006, 2009 and 2013) to control for their possible implications. Regression is estimated using a robust procedure that controls for potential effects of outliers in the dataset. The equation is estimated for two groups of subsamples and the full sample: 1) initial growth period (1990-2000), 2) pre-crisis period (2001-Aug 2007), 3) crisis period (Sept 2007-2009) and 4) post-crisis period (2010-2015). The constant α represents average excess returns of bidders after controlling for the effects of the explanatory variables. '***' '**', '*' represent significance at 1%, 5% and 10% respectively.

Variables	All periods	Initial growth	Pre-crisis	Financial crisis	Post-crisis
Constant	0.191	0.029	0.313	0.582	-0.380
Market return	-0.101**	-0.190**	0.0251	-0.1317	-0.1964
Cash deal	-0.248	-0.094	-0.424*	-0.860	0.342
Shares deal	-0.153	1.413**	-0.963*	-0.421	-0.026
Relative deal size	-0.002	0.015	-0.001	-0.278	-0.004
Deal value	0.021	0.031	0.028	-0.673***	0.141
Focused deal	-0.255*	-0.131	-0.301	0.692	-0.796*
Listed target	-0.294*	-0.058	-0.312	-0.186	-0.691
Eurozone bidder and target	0.006	0.137	-0.197	-0.497	-0.148
Domestic target	0.117	-0.041	0.251	2.172*	0.175
Interaction	0.335	-1.422*	0.289	0.000	1.720
Years of high market returns	0.103	0.150	-0.154	1.896	0.924*
Years of low market returns	-0.361**	0.028	-0.380	0.466	-0.603
Adjusted R^2	1.8*	2.5	4.2**	13.9*	5.5
N	1457	646	493	125	183

Following conclusions can be drawn from the results above (Table 15). The BHARs are in an inverse relationship with the market returns. This finding implies that lower abnormal returns for the bidders are more likely to occur during the periods of rapid movements of the market. Significant dummy variable of negative market returns (at 5% level) provide further information that mergers are value destroying for the acquirers if mergers are finalised during the years of abnormally low market returns. In other words, a weak market is per se a negative factor for the mergers' success in the European banking sector. It can also be interpreted in the following way: these findings support the hypothesis that mergers that are announced during the periods of depressed financial markets result in value destruction for the bidders' shareholders by default. In this particular case, the regression analysis shows that mergers announced in 1992, 2000, 2001, 2002, 2008 and 2011 were expected to be unsuccessful.

According to the findings of regression analysis of the replicated sample (1990-2004) in the previous chapter, the mergers with listed banks are more likely to result in minimum abnormal returns (focused mergers are considered too risky and value-destroying by the market).

The analysis was each of the sub-periods was also conducted. It is noteworthy that the results show strong evidence in favour of the value-driven merger wave in the European financial sector in 1990-2001. The positive and significant correlation in the estimate shows that banks were paying with their stock for the deals, resulting in higher rewards by the market investors. This finding is in contrast with the general line of the literature, which claims that cash-financed M&A's are more value-generating (Cybo-Ottone and Murgia, 2000; Beitel et al., 2004; Campa and Hernando, 2006)

The period of the financial crisis (2007-2009) was characterised by significant negative coefficient of the deal value variable (at 1% level) implying that the "inverse size effect" (Beitel et al., 2004) exists: larger acquirers are less likely to experience higher wealth gains after the acquisitions, as the post-merger integration costs are higher and the merger structures are more complex. In other words, this result can be interpreted as an indirect support to the hypothesis of "ineffective management" of the acquirers. The market investors tend to consider larger deals as less effective and less substantiated, been more likely to relate to them as reflections of the "empire-building" tendencies. As a result, larger deals generate lower gains for acquirers' shareholders. Furthermore, domestic deals were considered as mergers with lower risks, acting as a "safe heaven" for distressed banking institutions.

4.3. Conclusion

This chapter aimed to replicate the study by Ekkayokkaya et al. (2009) and to re-test several hypotheses related to the influence of the introduction of the euro on the European banking M&A's. Furthermore, the initial sample of 1990-2004 was extended to cover the period up to 2015. Additionally, the EU was considered in its present borders (so-called "EU-28"), including newly-joined countries from the Central and Eastern Europe to ensure the integrity of the EU.

The replication procedure resulted in supportive findings for the paper by Ekkayokkaya et al. (2009). For instance, it was confirmed that M&A's do not create significant value for the bidders' shareholders. Also, it can be concluded that the

most wealth-gaining European banking acquisitions were finalised in the run-up period (1996-1998). Meanwhile, no significant positive changes in the bidders' shareholders wealth in mergers during the pre-euro period (1990-1995) and the post-euro period (1999-2004) were found. Furthermore, in line with the findings by Ekkayokkaya et al. (2009), the process of acquiring private targets generates higher gains for the bidders. It was also found that diversifying mergers were more successful in the short-term value creation, particularly involving targets from insurance and financial services, which managed to bring positive value gains for the involved companies. The regression analysis demonstrated that acquirers' gains are mainly dependent on the market movement, size of the deal and the listed status of the targets. In line with the conclusions by Ekkayokkaya et al. (2009), the evidence shows that higher market returns were the core factors that ensured higher BHARs. Furthermore, the obtained results differ from findings by Ekkayokkaya et al. (2009), as the calculations in this chapter indicate that larger deals are able to generate higher wealth gains for the bidders, especially in the pre-euro period (1990-1995). Overall, it was found that the introduction of the euro had a negative impact on the outcomes of the European banking mergers, as the competition increased after 1999, provoking fierce rivalry between the EU banks over the limited targets in the Eurozone and eliminating opportunities for wealth growth in the short run (for the acquisitions in 2000-2004). This finding is in contrast to the most recent paper by Perera et al., (2013), who testified growth in abnormal returns for the banks involved in mergers after the adoption of the common currency. However, the comparability can be distorted due to the fact that Perera et al., (2013) included non-bank mergers into the sample.

The analysis of the impact of the financial crisis on the European banking M&A's has also provided some interesting findings. On average, acquirers experienced losses of almost -1.15% in the shareholders' wealth around the announcement date in 2007-2009, which clearly differs from zero-close abnormal returns before and after the crisis. Both focused and diversifying M&A's were value-destroying; however, the only type of targets, that was able to bring positive (but yet insignificant) gains to the bidders, was the subsector of investment companies. This finding provides evidence that market was able to react positively on the deals announced during the crisis, thus showing optimistic attitude to the efforts to diversify into the industries less exposed to the liquidity crisis. The outcomes for

domestic and cross-border M&A's were almost equal in pre- and post-crisis periods, but domestic takeovers resulted in significant losses for the acquirers' shareholders during the financial crisis. Generally, the average BHARs did not recover to the pre-crisis levels, serving as the evidence of structural problems with liquidity and inefficient regulation in the European financial sector for the post-crisis period as well.

The regression analysis has shown that the overvaluation-driven wave of takeovers was confirmed between 1991 and 2001 during the 5th global merger wave. One of the most significant factors to define the behaviour of bidders' wealth changes during the financial crisis (2007-2009) was the negative correlation between deal value and abnormal returns. This finding confirms the theory that post-merger integration and materialisation of synergies is more difficult to achieve in the large-scale banking deals. Similar negative expectations were persisting during the post-merger period (2010-2015), when focused deals were value-destroying, as the market was sceptical towards the deals without diversification and possibly was hedging itself against the repetition of the unsolved crisis-related problems.

5. Re-evaluating the short-term changes in shareholders' wealth of the European merging banks (following Asimakopoulos and Athanasoglou, 2013)

This chapter is dedicated to the replication and further extension of the paper by Asimakopoulos and Athanasoglou (2013), which researched the value changes for the banks involved into mergers and acquisitions in the European Union between 1990 and 2004. The key idea was to establish the impact of major external and internal factors (deal configuration, country of origin, method of payment etc.) on the changes of banks' value around the announcement. Furthermore, the combined approach was implemented: first, stock market data was used to calculate abnormal returns and to establish, whether different types of banking mergers create value; further, accounting data was applied into the regression analysis framework to define the "optimal configuration" of the merging bank (i.e. to establish the bank with the particular accounting variables that maximise the growth in value). Chapter 5.1 replicates the initial paper by Asimakopoulos and Athanasoglou (2013) and covers the period of 1990-2004. Further, chapter 5.2 extends the initial research, considering banking mergers in 1990-2015 in broader, modern configuration of the European Union – EU-28. Similarly to chapter 4.2, implementing extended period gives an opportunity to analyse the impact of the global financial crisis on the M&A outcomes

The data is collected from Thomson Reuters SDC Platinum database and include stock prices of all banks that are involved into M&A's between 1990 and 2015, as well as stock market indices. The key selected methodology was event study (market return model), assessing the abnormal returns of bidders and targets around the merger announcement date with market return model, used previously by Fuller et al. (2002) and Faccio et al. (2006). Obtained CARs (cumulative abnormal returns) were included into regression analysis framework revealing the changes in the shareholders' wealth and the factors of M&A's success or failure.

Considering the methodology used in chapter 5, Asimakopoulos and Athanasoglou (2013) undertook a complex approach, combining the frequently utilised event study methodology and accounting-based data to compare the pre-merger and post-merger performance of the selected banks. On the one hand, the event study methodology estimates the market assessment of the mergers with the help of market model previously used in Beitel et al., (2004), Lepetit et al., (2004), Campa and Hernando (2006):

$$R_{it} = \alpha_i + \beta_i R_{mt} - \varepsilon_i, \quad (22)$$

where: R_{it} is the expected return of share *i* at day *t*, R_{mt} is the return of the market portfolio at day *t*, α_i, β_i are the coefficients of the model, ε_i is a statistical error term. Further, OLS and GARCH estimations are applied to assess the "normal" behaviour of the stocks in the sample. Afterwards, abnormal returns are calculated:

$$AR_{it} = R_{it} - \widehat{R_{\imath t}}, , \quad (23)$$

where R_{it} is the real return, $\widehat{R_{\imath t}}$ – estimated return.

Importantly, asymmetric GARCH estimation technique controls for the time-varying variance and periods of high volatility (following Bollerslev, 1986). Obtained abnormal returns would be finally used as criteria to assess the success of failure of the acquisition. The specification of asymmetric GARCH model is following the model first described in Nelson (1991), and often referred to as "EGARCH model":

$$\begin{aligned} &R_{it} = \alpha_i + \beta R_{mt} + \varepsilon_{it} \\ &\varepsilon_{it} = \nu_t \, \sigma_{it}; \nu_t \sim N(0,1,\mu) \\ &ln\sigma_{it}^2 = \omega_i + \rho_i \ln(\sigma_{it-1}^2) + \gamma \frac{\varepsilon_{it-1}}{\sqrt{\sigma_{it-1}^2}} + \tau \left[\frac{|\varepsilon_{it-1}|}{\sqrt{\sigma_{it-1}^2}} - \sqrt{\frac{2}{\pi}} \right] \end{aligned} \quad (24)$$

where R_{it} – normal return; R_{mt} – market return, α, β – coefficient, ε_{it} – residuals of mean equation, A, B, C – coefficients in variance equation, σ_{it} – conditional variance, μ denotes a vector of parameters needed to specify the probability distribution. ω, ρ, γ, τ are parameters. ω is a constant, τ represents magnitude effect, ρ measures the persistence in conditional volatility irrespective of the market conditions, γ measures the asymmetry or the leverage effect (if $\gamma = 0$, model becomes symmetric GARCH). The key point of asymmetric EGARCH model is its ability to capture the effect, when market reacts to the bad news in a more powerful way than for the good news.

Afterwards, obtained CARs are incorporated into the regression analysis along with deal-specific data and accounting ratios. This complex approach combines the market-based approach and accounting data approach and allows the researcher to obtain a comprehensive estimation of the merger outcomes.

5.1. Replication of the paper by Asimakopoulos and Athanasoglou (2013)

5.1.1. Sample and data characteristics

The sample for the replication is collected from Thomson Financial Database and Datastream, identically to sample by Asimakopoulos and Athanasoglou (2013) and the selection criteria in the paper. All banking merger deals between 01.01.1990 and 31.12.2004 are collected. Both bidder and target are categorised as banking institutions and are registered in the EU-15 (as on 01.01.2004). Furthermore, at least one involved company is publicly listed in one of the EU countries, and the share prices are available from Datastream or Bloomberg. Only one deal is selected for a particular bidder in order to isolate the information content of specific deals. Furthermore, all accounting-related information on the merging banks was downloaded from Datastream and Bloomberg. After filtering procedures, 197 bids survived these criteria. This number is close to the sample in the paper by Asimakopoulos and Atahasoglou (2013), who worked with 170 banking M&A's.

Table 16 describes the distribution of M&A activities of the banks originating from the 15 EU countries in our sample. The cross-tabulation of acquisition bids shows that most of the sample bids are announced by banks based in Italy (69), Spain (23), Germany (22) and France (21), whereas Finland, Greece and Luxembourg have the least active M&A markets (only one merger by banks originating from these countries).

The results in Table 17 show that average deal size is approximately $940.84 million. Domestic deals are generally larger than cross-border acquisitions ($1089.43 million and $588.92 million respectively). Table 17 also demonstrates that larger bidders are involved in cross-border mergers implying that larger banks are able to take risks linked with cross-border growth – an average size of the domestic acquirer is nearly $7.9 billion, while typical cross-border bidder is $13.1 billion. Furthermore, domestic deals result in larger number of acquired shares, comparing to the cross-

border deals (56.98% and 40.91% respectively), meaning that banks are usually not taking control of the foreign targets, and rather grow their ownership stake gradually.

Table 16. Distribution of sample deals by bidders' and targets' countries of origin (replication sample).

The table shows the geographical distribution of sample bids announced by banks based within the European Union (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the UK) and target originates from EU-15 or new European Union members between1990 and 2004. New EU members include the ten countries that joined the EU on 1 May 2004: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. A bidder is included in the sample if it is categorised as a bank in the SDC database, either bidder or targets are listed on a stock exchange in one of the above-mentioned 25 European member countries, and has participated in the M&A activities between 01.01.1990 and 31.12.2004.

	Target Nation																		
Acquirer Nation	**Austria**	**Denmark**	**Estonia**	**Finland**	**France**	**Germany**	**Greece**	**Hungary**	**Ireland**	**Italy**	**Lithuania**	**Netherlands**	**Poland**	**Portugal**	**Slovakia**	**Spain**	**Sweden**	**UK**	**Total**
Austria	3	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	0	**7**
Belgium	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	**4**
Denmark	0	7	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	**10**
Finland	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
France	0	0	0	0	17	0	1	0	0	3	0	0	0	0	0	0	0	0	**21**
Germany	1	0	0	0	1	9	0	0	0	1	0	1	7	0	0	2	0	0	**22**
Greece	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
Ireland	1	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	**4**
Italy	0	0	0	0	1	2	0	1	0	60	0	0	0	0	3	1	0	1	**69**
Luxembourg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	**1**
Netherlands	0	0	0	0	1	0	0	1	0	2	0	1	1	0	0	0	0	0	**6**
Portugal	0	0	0	0	2	0	0	0	0	0	0	0	1	3	0	1	0	0	**7**
Spain	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	15	0	3	**23**
Sweden	0	3	2	0	0	1	0	0	0	0	1	0	1	0	0	0	5	0	**13**
United Kingdom	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	0	4	**8**
Total	**6**	**10**	**2**	**1**	**24**	**12**	**2**	**3**	**2**	**68**	**1**	**2**	**14**	**6**	**7**	**22**	**6**	**9**	**197**

Table 17. Sample characteristics.

Bids announced by banks based within the European Union (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the UK) during 1990–2004 are included in the sample. A bidder is included in the sample if it is categorised as a bank in the SDC database, either bidder or targets are listed on a stock exchange in one of the EU-25 countries, and has participated in the M&A activities between 01.01.1990 and 31.12.2004. For a given deal, the deal value is reported in US dollars.

Panel A. Sample distribution of the European banking M&A announcement (replication sample).

	Replication sample					Sample in Asimakopoulos and Athanasoglou (2013)				
Bidders	**Total**	**Listed targets**		**Unlisted targets**		**Total**	**Listed targets**		**Unlisted targets**	
		Domestic	**Cross-border**	**Domestic**	**Cross-border**		**Domestic**	**Cross-border**	**Domestic**	**Cross-border**
Listed	**193**	96	57	29	11	**145**	34	14	42	55
Not listed	**4**	2	2	-	-	**25**	18	5	-	-
Total	**197**	**98**	**59**	**29**	**11**	**170**	**52**	**19**	**42**	**55**

Panel B. Summary statistics (replication sample).

	Domestic bidders			**Foreign bidders**			**All bidders**		
	Mean	*Median*	*St.Dev.*	*Mean*	*Median*	*St.Dev.*	*Mean*	*Median*	*St.Dev.*
Shares acquired (%)	56.98	51.00	36.23	40.91	26.60	39.01	51.08	49.38	37.97
Deal Value (in $ million)	1089.43	248.61	2399.65	588.92	100.64	2539.32	940.84	153.82	2442.68
MV of bidders (in million $)	7935.90	3085.25	16230.96	13129.36	7905.53	12635.94	9771.97	4733.95	15230.04

5.1.2. Empirical results

5.1.2.1. M&A announcement and market reaction

Similarly to the paper by Asimakopoulos and Athanasoglou (2013), behaviour of the cumulative abnormal returns for the (-20;+20), (-10;+10), (-20;0), (-10;0), (-1;+1), (0) event windows for both targets and bidders was investigated, following classic event windows used by Cybo-Ottone and Murgia (2000). The researchers follow the general framework widely accepted in the M&A studies: the announcement date is considered a date when the event of interest occurs (merger announcement), and the market reaction is assessed in various event windows to capture different reaction patterns in the periods before and after the particular dates. For instance, the (0) event window includes only the announcement day and estimates the market reaction only on the announcement date. The most frequently used event window of (-1;+1) accounts for possible market imperfections and widens the analysed time periods for a day prior to and after the merger announcement. Some other researchers advise using wider event windows to control for so-called "run-up periods" when market anticipates the merger or, alternatively, the news

disseminations is slow, and the reaction is detectable only after several days (MacKinlay, 1997). Thus, the aggregate reaction is distributed over plenty of days before and after the announcement, and the researcher has to study different event windows of a various length (Krivin et al., 2003). For instance, (-1;+1) event window was utilised by Cybo-Ottone and Murgia (2000), Ismail and Davidson (2005), Hagendorff et al. (2009), Lensink and Maslennikova (2008), Ekkayokkaya et al. (2009), Beltratti and Paladino (2013), etc. To achieve precision in the process of capturing market reaction to the merger events, the same authors used longer event windows of (-20;+20)(Cybo-Ottone and Murgia, 2000; Schiereck and Strauss, 2000, Weese, 2007; Kolaric and Schiereck, 2013), (-10;+10)(Cybo-Ottone and Murgia, 2000; Beitel et al., 2004; Lorenz et al., 2006; Beltratti and Paladino, 2013) and asymmetric event windows of (-10,0) and (-20;0)(Amihud et al., 2002; Ismail and Davidson, 2007).

The cumulative abnormal returns for each day of observation are reported in Figure 2 for the replication sample and in Figure 3 for the initial paper sample. In a similar manner, average CARs for bidders and targets are reported in Table 18a (for replication sample) and Table 18b (for Asimakopoulos and Athanasoglou, 2013). Typical performance for both bidders and targets is obvious on Figure 2: the bidders experience almost no distinctive reaction on the announcement date, and the abnormal returns are decreasing 20 days after the announcement. On the other hand, similar to the results by Asimakopoulos and Athanasoglou (2013), the special run-up period is confirmed for targets (approximately beginning from - the 12^{th} day prior to the announcement). Hence, a dramatic rise of abnormal returns on -1^{st}, 0 and 1^{st} days is observed, reaching +4.23% on the 2^{nd} day after the event date. This positive reaction by the market is consistent and stable up to the end of the investigated period of (-20;+20) days around the announcement. The only difference comparing to the results of Asimakopoulos and Athanasoglou (2013) is that targets' positive CARs are preserved up to the end of the considered period, whereas the authors' data in the initial paper show a downward trend of ARs beginning from the 14^{th} day after the announcement. Consequently, it can be concluded that deal-related information can be gradually leaking to the market before the event date. This finding can be explained by the dissemination of the insider information and the market inefficiencies, the phenomena which are also observed in other studies on the

M&A's involving banks in the US and the EU (Campa and Hernando, 2006; Beltratti and Paladino, 2013).

Figure 2. Cumulative abnormal returns for acquirers and targets (replication sample, 1990-2004)

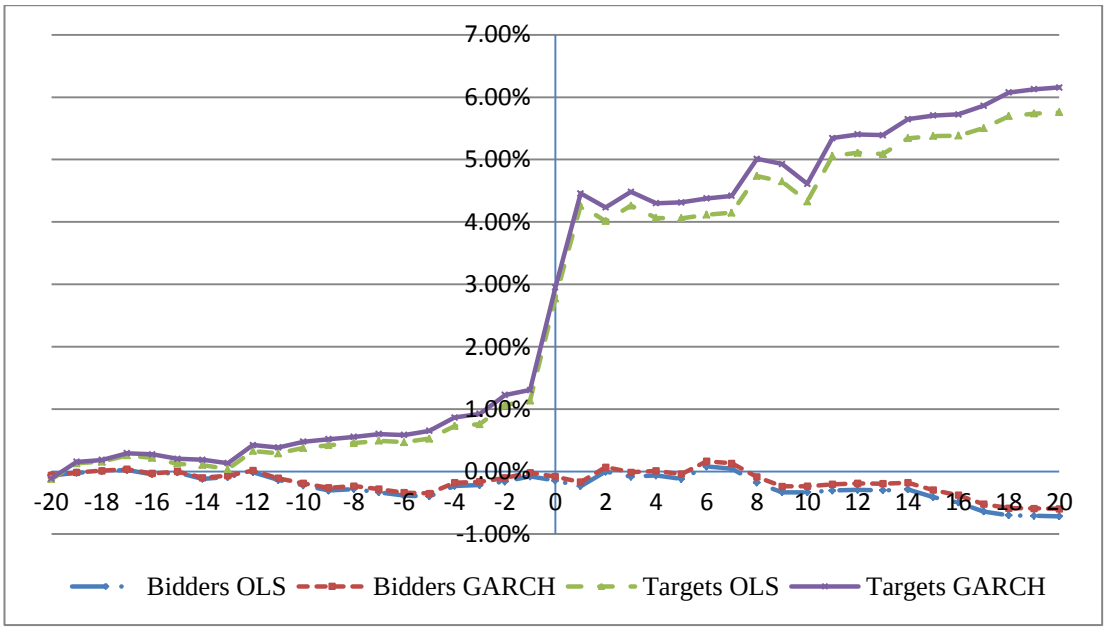
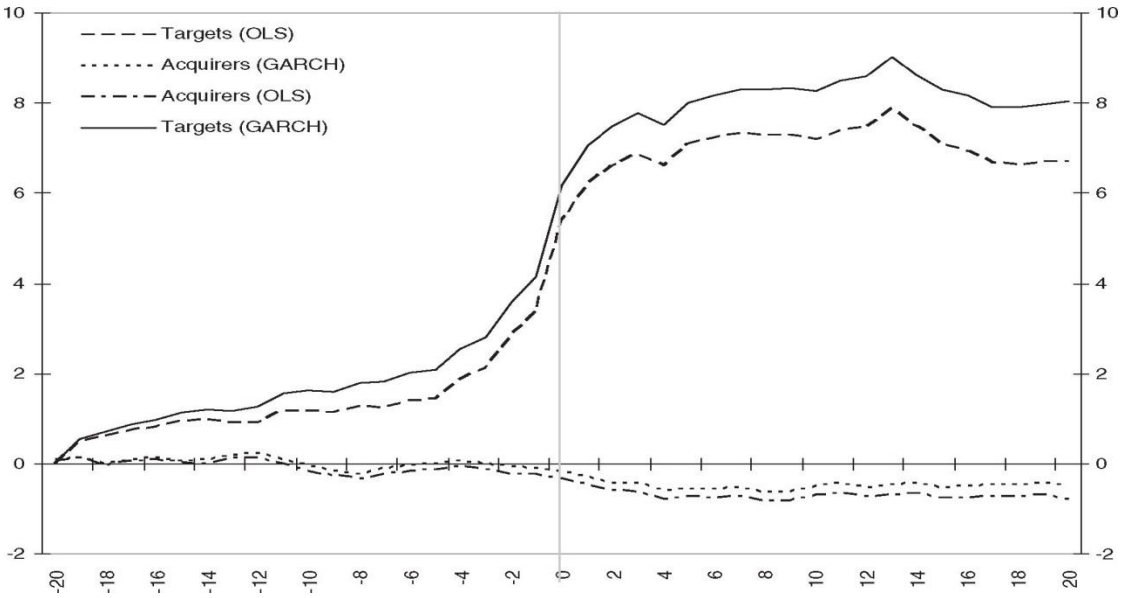


Figure 3. Cumulative abnormal returns for acquirers and targets (Asimakopoulos and Athanasoglou sample)



As reported in Table 18a, the reaction for bidder banks at event date is -0.13% and +0.01% under the OLS and GARCH estimation methods respectively. During

the largest event window of (-20;+20), the negative reaction of the market amounted to approximately -1.82% and -1.58% respectively. The findings are similar and even more pessimistic for acquirers than the initial results by Asimakopoulos and Athanasoglou (2013) and the earlier studies by Cyba-Ottone and Murgia (2000) and Beitel et al., (2004), who also reported insignificant negative CARs for the bidder banks involved into M&A's. These results are also in line with Ismail and Davidson (2005) who testified that acquirers' abnormal returns are close to zero in the European market.

Confirming the initial hypothesis by Asimakopoulos and Athanasoglou (2013), the results for the targets confirm that M&A's create value for the targets' shareholders. The abnormal returns at the event date are +0.61% and +0.86% for OLS and GARCH estimation methods respectively. If wider event windows are considered, CARs are even larger: +2.23% and +2.63% for (-1;+1) and even +4.01% and +5.06% for (-20;+20) event window. It is noteworthy that CARs are statistically significant in all event windows except event date and (-10;0). These results are in line with Ismail and Davidson (2005) and other papers investigating European M&A's, who confirmed significant value creation for the targets' shareholders.

Table 18a. Cumulative abnormal returns of acquirers and targets at various intervals (total sample, OLS estimation, replication sample, 1990-2004).

Event window	Acquirers (N=197)				Targets (N=102)			
	CAR (%)		No. of deals		CAR (%)		No. of deals	
	OLS	GARCH	With positive CAR (OLS)	With negative CAR (OLS)	OLS	GARCH	With positive CAR (OLS)	With negative CAR (OLS)
(-20;0)	-1.17	-0.43	93	104	1.02[1,2]	1.64[1,2]	51	51
(-10;0)	-0.62	-0.26	94	103	0.51	0.92	50	52
(-1;1)	-0.09	0.08	95	102	2.23[1,2]	2.63[1,2]	57	45
(0)	-0.13	0.01	92	105	0.61	0.86	48	54
(-10;10)	-0.44	-0.28	98	99	2.81[1,2]	3.74[1,2]	51	51
(-20;20)	-1.82[1,2]	-1.58[1,2]	82	115	4.01[1,2]	5.06[1,2]	47	55

Table 18b. Cumulative abnormal returns of acquirers and targets at various intervals (total sample, OLS estimation, Asimakopoulos and Athanasoglou).

Event window	Acquirers (N=145)				Targets (N=71)			
	CAR (%)		No. of deals		CAR (%)		No. of deals	
	OLS	GARCH	With positive CAR (OLS)	With negative CAR (OLS)	OLS	GARCH	With positive CAR (OLS)	With negative CAR (OLS)
(-20;0)	-0.33	-0.18	73	79	5.38[1,2]	6.18[1,2]	49	22
(-10;0)	-0.33	-0.28	71	81	4.22[1,2]	4.61[1,2]	48	23
(-1;1)	-0.23	-0.22	69	83	3.36[1,2]	3.47[1,2]	47	24
(0)	-0.08	-0.07	73	79	2.01[1,2]	2.03[1,2]	47	24
(-10;10)	-0.70	-0.59	64	88	6.02[1,2]	6.69[1,2]	48	23
(-20;20)	-0.79	-0.51	68	84	6.60[1,2]	8.03[1,2]	47	24

Note: 1, 2 denote significance at the 5% level of significance for the BMP and the Corrado tests respectively.

Overall, the results are in line with the existing literature on the European banking mergers. More precisely, the value creation for the targets is confirmed, while acquirers' gains are close to zero or insignificantly negative (Beitel et al., 2004; Ismail & Davidson, 2005). The following explanation is highly probable: the increased competition in the European Union between 1990 and 2004 (primarily on the background of the homogenisation of the financial sector in the EU members, introduction of the euro, etc.) motivated bidders to be more risk-averse in terms of expansion, concentrating on the costs/profits rationalisation.

To clarify the situation, several subsamples were investigated in order to shed light on the short-run post-merger performance. The criteria of the public status and diversification status were used to divide the total sample. The below-mentioned results relate to the GARCH estimation, as OLS results are biased downwards (as stated previously). The results for the subsamples of domestic and cross-border deals are reported separately for acquirers buying public and private targets in Tables 19a (for replication sample) and 19b (initial sample). It can be concluded that domestic deals outperform cross-border deals in the subsample of public target M&A's. For instance, average CARs for the bidders in on the event date are almost +0.11% and -0.09% for domestic and cross-border mergers respectively, whereas the magnitude is even larger if consider (-20;+20) event window is considered (-0.75% and -2.31% respectively). It is obvious that gains for the acquirers do not persist for a long time, which is in line with Figure 2 described previously in this chapter. Such difference can be attributed to the number of risks related to the geographic expansion and international M&A's, which makes the market estimation of future gains more cautious for cross-border takeovers. On the other hand, the findings suggest opposite

results for the acquirers buying private targets. The CARs for event date are -0.39% for domestic deals and +0.48% for international takeovers. Possibly, the private targets contain larger opportunities to benefit from synergy gains and geographic risk diversification. However, the lack of information for private financial companies creates a barrier towards the studies of the market-related post-merger effects. These results provide an insight that organised stock exchange plays an extremely important role in providing a fair assessment of the merger deal.

In general, the results are in line with the findings by Cybo-Ottone and Murgia (2000), Beitel et al., (2004) and Lepetit et al. (2004), who explained the difference in CARs by cultural, legal and informational factors despite the intensified integration efforts in the 1990s and early 2000s.

Table 19a. Cumulative abnormal returns of acquirers for different classifications of targets (GARCH estimation, replication sample, 1990-2004).

Event window	Target listed (N=155)			Target not-listed (N=38)		
	CAR (%)		CAR difference	CAR (%)		CAR difference
	Domestic deals (N=96)	Cross-border deals (N=57)		Domestic deals (N=29)	Cross-border deals (N=11)	
(-20;0)	0.04	-0.33	0.37	-2.34[1,2]	-0.62	-1.71
(-10;0)	0.10	-0.33	0.43	-1.58	0.07	-1.65
(-1;1)	0.15	0.05	0.10	-0.39	0.58	-0.96
(0)	0.11	-0.09	0.19	-0.39	0.48	-0.87
(-10;10)	0.10	-0.37	0.46	-1.65[1,2]	0.01	-1.65
(-20;20)	-0.75	-2.31[1,2]	1.56**	-2.32[1,2]	-2.80[1,2]	0.48

Notes: 1, 2 denote significance at the 5% level of significance for the BMP and the Corrado tests respectively. * (**) denote significance at the 5% (10%) level of significance for the CAR difference (t-test).

Table 19b. Cumulative abnormal returns of acquirers for different classifications of targets (GARCH estimation, Asimakopoulos and Athanasoglou).

Event window	Target listed (N=48)			Target not-listed (N=97)		
	CAR (%)		CAR difference	CAR (%)		CAR difference
	Domestic deals (N=34)	Cross-border deals (N=14)		Domestic deals (N=42)	Cross-border deals (N=55)	
(-20;0)	0.99[1]	-0.42	1.41	-0.89	-0.15	0.74
(-10;0)	0.77[1]	-0.35	1.13	-0.77	-0.41	0.36
(-1;1)	0.59	-0.60*	1.19	-0.50	-0.27	0.23
(0)	0.31	-0.33	0.64	-0.26	-0.03	0.23
(-10;10)	1.04[1]	-0.87	1.91	-1.47[1,2]	-0.65[1]	0.83
(-20;20)	1.23[1,2]	-1.18[1,2]	2.41**	-1.60[1,2]	-0.32	1.27

Notes: 1, 2 denote significance at the 5% level of significance for the BMP and the Corrado tests respectively. * (**) denote significance at the 5% (10%) level of significance for the CAR difference (t-test).

5.1.2.2. The determinants of value creation

a) Estimations based on OLS

The previous section provides interesting insights considering the short-term post-merger performance of the European banking mergers, and the results are in line with both replicated paper by Asimakopoulos and Athanasoglou (2013) and previous studies by Cyba-Ottone and Murgia (2000), Beitel et al. (2004), Campa and Hernando (2006) and other researchers of the European banking M&A's. Thus regression analysis was performed to estimate the influence of the deal-related and firm-related factors on the abnormal returns. (-1;+1) event window was selected primarily due to the relatively small period around the event date with absent information leakages and the direct comparability with the majority of other studies. The following explanatory variables were used, following Asimakopoulos and Athanasoglou (2013).

Table 20. Variables in the regression model

Variable	Description
Target dummy	1 if bank is target, 0 otherwise
Domestic merger dummy	1 if merger is domestic, 0 otherwise
Listed dummy	1 if bank is listed, 0 otherwise
Hofstede cultural index	Sociocultural index, developed by Hofstede (1990); consists of 4 weighted variables: power distance, individualism, masculinity, uncertainty avoidance
ROE	Return on Equity (net income / shareholders' equity)
Size	Natural logarithm of total assets
Liquidity	Loans-to-deposits ratio
Loan loss provision	Provisions-to-loans ratio
Efficiency	Operating expenses / operating income ratio
Diversification	Net interest margin / total income ratio
Deal value	Value of the merger (in $ billions)
Year of positive returns dummy	1 if a merger announced in a year with the stock market reported a positive return, 0 otherwise

Note that all accounting data variables were measured in the year prior to the year when the deal was announced.

Further, univariate models were estimated to identify the sole potential effect of each variable and to establish the influence of each factor separately. These estimations helped to identify the factors that should be included in the multivariate model to establish the joint influence of parameters on the abnormal returns. The results suggest that all dummy variables with the exception of target status dummy have a negative effect on the CARs. The univariate regressions for the accounting data variables show similar results: all variables except liquidity proxy, provisions-

to-loans ratio and deal value are negatively correlated with the abnormal returns. Considering the significance of the respective coefficients, it appears that target status, ROE and provisions-to-loans ratio are significant at 1% level, and bidder size is significant at 10% level. Overall, it appears that significant negative effect on the final CARs is caused by ROE and bank size, whereas provisions-to-loans and abnormally high market returns have a positive impact on the short-run CARs. The obtained findings indicate that the mergers between smaller, less profitable, less risk-exposed banks are the most successful for bidders and targets. Obviously, these findings support the theory that smaller banks are easier to incorporate into the structure of the combined entity after the acquisitions and to reach synergy gains afterwards. Furthermore, the "clustering" of more successful mergers can occur if the market itself is growing. The results from the replication sample mainly differ from the findings by Asimakopoulos and Athanasoglou (2013) only by the fact that provisions-to-loans and merger year were not significant in the initial paper.

b) Estimation based on Probit method

Further, a probit model is utilised to estimate the effects of the variables on the CARs for the (-1;+1) event window in terms of probabilities. Thus the medians for all bank-related characteristics are calculated, and the parameters are recalculated to the binary form. The variables take the value of 1 if it is higher than the median and 0 otherwise. The reason behind this estimation is following: probit estimation can give a further, more detailed indication whether a probability of producing higher abnormal returns is increasing when the bank's characteristics are above or below their cross-section median. The results are reported in Tables 22a and 22b. It was revealed that the statistical significance is much weaker. In contrast to the study of Asimakopoulos and Athanasoglou (2013), the only significant variable is the dummy reflecting abnormally high market returns. Thus, as in the OLS estimation, the probability of gaining positive CARs is increasing if the merger deal is announced during the years of the abnormal market growth. Although other variables were found to be insignificant, target status dummy and credit risk proxy are positively correlated with CARs, while domestic merger dummy, ROE, bank size, liquidity and efficiency ratios are negatively related to the abnormal short-run returns.

Table 21a. Factors explaining the abnormal returns for the (−1, +1) window (OLS estimation, replication sample, 1990-2004).

c	Target	Dom	Listed	Cult	ROE	Size	Liq	Prov	Eff	Nii-Ti	Value	Year	R^2	F
-0.180	2.44***												0.027	8.61*
0.918*		-0.693											0.002	0.45
0.407			-0.242										0.000	0.10
2.21				-0.026									0.001	0.96
1.76***					-0.106***								0.025	7.28*
7.97*						-0.415*							0.010	2.88*
0.665							0.016						0.000	0.00
-1.64***								2.90***					0.113	37.66*
0.672									-0.152				0.000	0.12
0.676*										-0.140			0.001	0.68
0.872											0.154		0.002	0.02
0.017												2.95***	0.030	8.08*
-8.25*	2.22**				0.015	0.289		2.97***				2.49***	0.155	10.84***
-3.01					0.016	0.034		2.94***				2.59***	0.136	11.69***

Table 21b. Factors explaining the abnormal returns for the (−1, +1) window (OLS estimation, Asimakopoulos and Athanasoglou).

c	Target	Dom	Listed	Cult	ROE	Size	Liq	Prov	Eff	Nii-Ti	Value	Year	R^2	F
-0.217	3.683*												0.101	26.084*
0.131		1.469**											0.014	4.295**
0.477			1.066										0.006	2.252
0.056**				-0.012									0.005	1.173
2.110*					-0.103***								0.009	3.057***
5.987*						-0.453*							0.022	6.140*
1.001							- 0.042						0.001	0.46
0.982***								-0.006					0.000	0.100
1.046									-0.133				0.000	0.001
- 1.143										3.801			0.005	2.193***
0.911**											0.004		0.000	0.150
0.633												0.485	0.000	0.416
0.094	3.387*	0.553			-0.003	-0.012							0.093	6.710
5.160**		1.083**			-0.008***	-0.352***							0.032	3.504**

Notes: *, **, *** denote significance at the 1%, 5% and 10% level of significance respectively.

c is the constant of the equation, Target is a binary variable taking the value of 1 if the bank is a target and the value of 0 otherwise, Dom is a binary variable taking the value of 1 if the M&A deal is a domestic one and the value of 0 otherwise, Listed is a binary variable taking the value of 1 if the bank lists its shares in an organised stock exchange and the value of 0 otherwise, Cult measures the cultural distance between the countries involved in the deal, ROE is the return of equity, Size is measured by the natural logarithm of total assets, Liq is the loans to deposits ratio, Prov is the provisions for loans losses to total loans ratio, Eff is the cost to income ratio, Nii_Ti is the contribution of interest related income to total income, Value is the value of the deal and YEAR is a binary variable that takes the value of 1 when the performance of the stock market was positive and the value of zero otherwise.

Table 22a. Factors explaining the abnormal returns for the (−1, +1) window (Probit estimation, replication sample, 1990-2004).

c	Target	Dom	Listed	Cult	ROE	Size	Liq	Prov	Eff	Nii-Ti	Value	Year	Pseudo R^2	LR
-0.0507	0.171												0.0030	1.27
0.0132		-0.0132											0.0000	0.01
-0.24235			0.2839										0.0066	1.82
0.114				-0.216									0.0053	2.24
0.0415					-0.0664								0.0005	0.21
0.0914						-0.166							0.0032	1.33
0.0415							-0.0664						0.0005	0.21
-0.0415								0.0996					0.0011	0.48
0.0249									-0.0332				0.0001	0.05
-0.108										0.233			0.0062	2.60
0.0083											-		0.0052	1.42
-0.0957												0.485*	0.0180	7.52**
-0.0706	-0.0164					-0.119	0.0046	0.0944	-0.0304	0.220			0.0090	3.76
-0.0737						-0.116	0.0051	0.0938	-0.0297	0.211			0.0090	3.76

Table 22b. Factors explaining the abnormal returns for the (−1, +1) window (Probit estimation, Asimakopoulos and Athanasoglou).

c	Target	Dom	Listed	Cult	ROE	Size	Liq	Prov	Eff	Nii-Ti	Value	Year	Pseudo R^2	LR
-0.082	0.500*												0.024	7.486*
- 0.025		0.176											0.003	1.086
0.030			0.095										0.001	0.316
0.139				-0.082									0.000	0.237
0.112					-0.078								0.000	0.216
0.225***						−0.453*							0.010	3.274
0.180							-0.213						0.005	1.115
- 0.067								0.283***					0.009	2.831
0.2487**									-0.350**				0.014	3.421**
- 0.0896										0.329**			0.012	3.815**
0.0223											0.102		0.001	1.369
												-0.006	0.000	0.139
0.232	0.517*					−0.072	-0.025	0.173	-0.454**	-0.028			0.055	17.086*
0.318						-0.219	-0.238	0.181	-0.327***	0.1119			0.036	11.283

Notes: *, **, *** denote significance at the 1%, 5% and 10% level of significance respectively.

c is the constant of the equation, Target is a binary variable taking the value of 1 if the bank is a target and the value of 0 otherwise, Dom is a binary variable taking the value of 1 if the M&A deal is a domestic one and the value of 0 otherwise, Listed is a binary variable taking the value of 1 if the bank lists its shares in an organised stock exchange and the value of 0 otherwise, Cult measures the cultural distance between the countries involved in the deal, ROE is the return of equity, Size is measured by the natural logarithm of total assets, Liq is the loans to deposits ratio, Prov is the provisions for loans losses to total loans ratio, Eff is the cost to income ratio, Nii_Ti is the contribution of interest related income to total income, Value is the value of the deal and YEAR is a binary variable that takes the value of 1 when the performance of the stock market was positive and the value of zero otherwise.

c) Determinants of the share price reaction of acquirers and targets

Although several interesting suggestions were presented in the analysis above, the findings results lack differentiation between the acquirers and targets. Thus, similarly to the paper by Asimakopoulos and Athanasoglou (2013), the matched sample should be analysed to establish the exact role of the determinants in short-run market reaction. A new sample of matched acquirers and targets was constructed, containing full data for the involved banking institutions. Basic descriptive statistics of these bank-related variables is reported in Table 23. The replication sample is smaller than a sample in Asimakopoulos and Athanasoglou (2013), which can raise some issues considering the validity of the results, primarily linked with the completeness of the data in Datastream and Bloomberg databases.

Table 23. Basic descriptive statistics for a matching sample of acquirers and targets (replication sample, 1990-2004).

	Replication sample						Sample by Asimakopoulos and Athanasoglou (2013)					
	Relroe	**Relsize**	**Relliq**	**Relprov**	**Releff**	**Rel-Nii-Ti**	**Relroe**	**Relsize**	**Relliq**	**Relprov**	**Releff**	**Rel-Nii-Ti**
Mean	1.81	1.09	1.22	1.47	4.69	2.10	2.41	1.28	1.16	0.82	0.88	0.85
Median	1.02	1.08	1.03	0.94	0.80	0.67	1.42	1.19	1.05	0.69	0.89	0.83
St. Dev	2.83	0.11	0.77	1.71	12.96	4.60	2.82	0.26	0.50	0.76	0.17	0.25
Obs	21	21	21	21	21	21	48	48	48	48	48	48

Notes: Relroe is the ratio of the ROE of the acquirers to the ROE of the targets, Relsize is the ratio of the natural logarithms of assets of the acquirers to the natural logarithm of assets of the targets, Relliq is the loans to deposits ratio of the acquirers divided by the respective ratio of the targets, Relprov is the provisions to total loans ratio of the acquirers divided by the respective ratio of the targets, Releff is the cost to income ratio of the acquirers divided by the respective ratio of the targets, Rel_Nii_Ti is the proportion of the interest-related income of the acquirers divided by the respective proportion of the targets.

Table 24a reports the results of the regression analysis for the subsample of bidders. Again, univariate regression technique is applied first, further followed by a multivariate regression that includes significant variables from the univariate regression stage. Finally, multivariate probit estimation is utilised. The findings suggest that the fundamentals based on the accounting data provide a weak explanation of the short-run abnormal returns. Surprisingly, only profitability ratio (ROE) is significant in both univariate and multivariate models. It appears that the mergers with the lower difference in profitability between the bidder and target banks are able to generate higher abnormal returns for the bidders, as homogenous structures are easier to integrate in the post-merger period. The results are similar to the findings by Asimakopoulos and Athanasoglou (2013), suggesting that using

accounting variables is quite an ineffective method to predict the success or failure of the banking mergers in the short run. The similar findings are reported for the targets as well. In contrast to the initial study, the replication sample results failed to demonstrate significant variables in the probit estimation, although Asimakopoulos and Athanasoglou (2013) reported the higher difference in size to have a positive effect on CARs, and higher cost-to-income ratio and the higher difference in income diversification to have a negative effect on abnormal returns. It is noteworthy that previous attempts to study the influence of corporate accounting data on the post-merger CARs have not come to clear conclusions, having produced zero or mixed evidence (Lepetit et al., 2004; Beitel et al., 2004).

Table 24a. Factors explaining the abnormal returns of acquirers for the (−1, +1) window.

Panel A: OLS estimation (replication sample, 1990-2004)

c	Relroe	Relsize	Relliq	Relprov	Releff	Rel-Nii-Ti	R^2-adjusted	F (LR for probit)
-1.18***	-0.380*						0.144	0.26
1.19		1.03					0.002	0.93
-0.616			-0.087				0.001	0.44
0.607				0.026			0.001	0.14
0.464					0.814		0.001	1.00
0.463						0.081	0.017	0.04
0.671	-0.504*	-2.81	-0.990	-0.061	0.056	0.125	0.223	0.38
Probit estimation								
-0.474	0.311	-0.999	-0.385	-0.195	1.174	0.894	0.169	3.40

Panel B: OLS estimation (Asimakopoulos and Athanasoglou, 2013)

c	Relroe	Relsize	Relliq	Relprov	Releff	Rel-Nii-Ti	R^2-adjusted	F (LR for probit)
-0.772**	0.114						0.061	1.78
-1.829		1.035					0.054	0.73
0.492			-0.851				0.065	1.85
-0.461				-0.042			0.012	0.91
0.023					-0.032**		0.043	3.36**
-0.615						0.132	0.001	0.45
1.094	0.110	1.207	-0.893	-0.038	-0.029***	0.201	0.052	1.11
Probit estimation								
-0.381	0.069	1.292***	-0.931**	-0.007	-0.021**	1.696**	0.213	15.25**

Notes: Relroe is the ratio of the ROE of the acquirers to the ROE of the targets, Relsize is the ratio of the natural logarithms of assets of the acquirers to the natural logarithm of assets of the targets, Relliq is the loans to deposits ratio of the acquirers divided by the respective ratio of the targets, Relprov is the provisions to total loans ratio of the acquirers divided by the respective ratio of the targets, Releff is the cost to income ratio of the acquirers divided by the respective ratio of the targets, Rel_Nii_Ti is the proportion of the interest-related income of the acquirers divided by the respective proportion of the targets.

Notes: *, **, *** denote significance at the 1%, 5% and 10% level of significance respectively

Table 24b. Factors explaining the abnormal returns of targets for the (−1, +1) window (Asimakopoulos and Athanasoglou).

Panel A: OLS estimation (replication sample)

c	Relroe	Relsize	Relliq	Relprov	Releff	Rel-Nii-Ti	R^2-adjusted	F (LR for probit)
3.62	-0.318						0.012	1.85
9.44		-5.89					0.007	2.89*
4.32			-1.04				0.010	0.00
2.68				0.246			0.003	0.18
3.29					-0.0519		0.007	1.47
2.92						-0.0606	0.001	0.92
06.97	-0.383	-2.54	-1.61	2.11	-0.322	0.0517	0.096	0.38
Probit estimation								
-1.188	1.231	-0.687	1.188	0.742	-0.315	0.122	0.1570	14.14**

Panel B: OLS estimation (Asimakopoulos and Athanasoglou, 2013)

c	Relroe	Relsize	Relliq	Relprov	Releff	Rel-Nii-Ti	R^2-adjusted	F (LR for probit)
3.889**	-0.063						0.025	0.18
-2.841		0.581					0.024	0.21
3.779			0.017				0.028	0.01
3.732**				0.021			0.025	0.01
-1.081					0.548		0.022	0.53
8.577						-0.642	0.027	0.98
-7.179	-0.201	0.391	0.018	0.828	0.174	-0.733	0.023	0.78
Probit estimation								
-0.006	-0.014	0.423	0.048	0.019	0.467	-0.225	0.06	0.49

Notes: *, **, *** denote significance at the 1%, 5% and 10% level of significance respectively. c is the constant of the equation, Relroe is the ratio of the ROE of the acquirers to the ROE of the targets, Relsize is the ratio of the natural logarithms of assets of the acquirers to the natural logarithm of assets of the targets, Relliq is the loans to deposits ratio of the acquirers divided by the respective ratio of the targets, Relprov is the provisions to total loans ratio of the acquirers divided by the respective ratio of the targets, Releff is the cost to income ratio of the acquirers divided by the respective ratio of the targets, Rel_Nii_Ti is the proportion of the interest-related income of the acquirers divided by the respective proportion of the targets. For the probit estimation, all variables take the value of 1 when their values are above the cross-section median and the value of zero otherwise. R2 are adjusted R2 for OLS estimations and McFadden R2 for the probit estimations, F and LR are the F and the likelihood ratio statistics for the OLS and the probit estimations respectively.

5.2. Extended sample (1990-2015)

In the next step, the key objective is to extend the study to the longer period up to 2015 to include the whole period between first European initiatives to harmonise the financial sector and the 5th merger wave up to the most recent times (the year 2015). The rationale behind this sample selection can be found in more detail at the beginning of chapter 4.2. The same filtering criteria as for the replication procedure are applied to the merger deals between European banks in 1990-2015. According to the latest researchers that aim to investigate the phenomenon of the banking M&A's in Europe, it is important to treat the European Union as the integral entity of increasingly homogenous financial systems (Fiordelisi et al., 2008; Koehler, 2009). Thus, the logic of recent papers suggests that the European financial environment should be considered in the broadest sense, including the countries that joined the EU after 1990 (*ibid*). The compromise decision considering the final sample is to include only those merger deals, which occurred in the particular country after it has become a member of the EU. Thus, the scope comprises the entire European financial sector, and simultaneously only the deals in the developed financial systems are analysed.

5.2.1. Sample and data characteristics

The results of the cross-country tabulation in Table 25 have shown that the Italian banking sector is the most active (resulting in 139 merger deals), while the second and the third largest markets for banking M&A's were Spain (50 acquisitions) and Germany (40 takeovers). As was previously outlined, the three above-mentioned countries of bidders' origin (Italy, Spain and Germany) contribute for almost more than a half of the total banking M&A's in the investigated period. These preliminary findings can indicate that the new EU members have influenced the processes of the banking consolidation very weakly, primarily due to a low number and volume of the merger deals. However, the total number of the deals between 1990 and 2015 is much higher than in 1990-2005, suggesting that the processes of banking sector consolidation were intensifying after 2005, but the global financial crisis of 2007-2009 terminated them or at least slowed down considerably.

Table 25. Distribution of sample deals by bidders' and targets' countries of origin (sample of 1990-2015).

The table shows the geographical distribution of sample bids announced by banks based within the European Union (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the UK) and the new European Union members during 1990–2015. New EU members include the ten countries that joined the EU on 1 May 2004, 1 January 2007 and 1 January 2013: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria, Romania and Croatia. A bidder is included in the sample if it is categorised as a bank in the Thomson SDC database, is listed on a stock exchange in one of the above-mentioned 28 European member countries, and has participated in the M&A activities between 01.01.1990 and 31.12.2015.

	Target Nation																									
Acquirer Nation	AT	BE	BG	CRO	CYP	CZ	DN	EST	FIN	FR	GER	GR	HUN	IRL	IT	LV	LT	LUX	NED	POL	PT	RO	SK	SP	SW	UK	Total
AT	9	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2	2	0	0	0	**18**
BE	1	7	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	2	4	1	0	1	0	0	0	**19**
BG	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
CZ	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
DN	0	0	0	0	0	0	25	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	**29**
FIN	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	**2**
FR	0	0	0	0	0	0	0	0	0	22	0	3	0	0	4	0	0	2	0	1	0	0	0	0	0	0	**32**
GER	1	1	1	0	0	0	1	0	0	2	23	0	0	0	2	0	0	0	0	7	0	0	0	2	0	0	**40**
GR	0	0	3	0	1	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	8	0	0	0	0	**28**
HUN	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	**3**
IRL	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	4	0	0	0	0	0	1	**8**
IT	0	0	0	0	0	1	0	0	0	1	3	0	1	0	125	0	0	1	0	1	0	1	2	2	0	1	**139**
LUX	0	0	0	0	0	0	0	0	0	2	1	0	0	0	1	0	0	0	1	0	0	0	0	3	0	0	**8**
NED	0	0	0	0	0	0	0	0	0	1	1	0	1	0	3	0	0	0	1	1	1	0	0	0	0	0	**9**
POL	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	16	0	0	0	0	0	0	**18**
PT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	0	0	2	0	0	**10**
RO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	**1**
SP	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	1	5	0	0	35	0	4	**50**
SW	0	0	0	0	0	0	7	2	2	0	2	0	0	0	0	1	1	0	0	2	0	0	0	0	7	0	**24**
UK	0	0	0	0	0	0	0	0	0	1	0	0	0	2	1	0	0	0	0	0	1	0	0	3	0	10	**18**
Total	**11**	**8**	**8**	**1**	**1**	**4**	**33**	**3**	**4**	**31**	**32**	**19**	**4**	**4**	**140**	**1**	**1**	**3**	**4**	**41**	**15**	**13**	**6**	**47**	**9**	**16**	**459**

Further, Table 26 demonstrates that almost all bidders are listed financial entities, with only 3 private bidders involved into M&A processes throughout the investigated period. The preliminary data analysis shows that average deal size is almost $805 million, which is significantly lower than average deal size in a narrower sample of 1990-2005 ($940.8 million). These findings suggest that the financial consolidation in the banking sector continued at the expense of smaller banks after 2005. Furthermore, as was expected, the average value of the domestic deals is slightly higher than the average value of the cross-border deals ($819.4 million and $779.2 million respectively). It is worth admitting, that the difference between domestic and cross-border deals is much lower than for the sample of 1990-2005 (when the average domestic deal was around $1.09 billion and cross-border around $0.59 billion), possibly because of the following reason. As the financial systems of the European Union members became more and more homogenised, the risks that accompany cross-border mergers decreased, resulting in high-value international bank takeovers. Thus, it is obvious that larger cross-border mergers occurred during the last decade of 2005-2015, signalling about further phases of consolidation between larger European banks, encouraging international mega-mergers. Also, as was expected, the average size of the international acquirer is higher comparing to the domestic bidders ($16.3 billion and approximately $9.2 billion respectively). Simultaneously, the extended sample demonstrates that the average size of bidders has also increased slightly if compared to the sample of 1990-2015 (approximately by 12% for domestic bidders and 26% for cross-border acquirers, 18.3% for the total sample).

Table 26. Sample characteristics (sample of 1990-2015).

Bids announced by banks based within the European Union (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, the UK, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria, Romania and Croatia) during 1990–2015 are included in the sample. The sample ensures that the bidder is categorised as a bank in the Thomson SDC database, listed on a stock exchange in one of the 28 European member countries, bidders' share price is available from Datastream. For a given deal, the deal value is reported in US dollars.

Panel A. Sample distribution of the European banking M&A announcements.

		Replication sample			
Bidders	**Total**	**Listed targets**		**Unlisted targets**	
		Domestic	**Cross-border**	**Domestic**	**Cross-border**
Listed	**456**	224	142	64	26
Not listed	**3**	3	-	-	-
Total	**459**	**227**	**142**	**64**	**26**

Panel B. Summary statistics.

	Domestic bidders			**Foreign bidders**			**All bidders**		
	Mean	*Median*	*St.Dev.*	*Mean*	*Median*	*St.Dev.*	*Mean*	*Median*	*St.Dev.*
Shares acquired (%)	58.80	56.30	39.12	51.29	50	40.24	55.95	51.15	39.67
Deal Value (in $ million)	819.40	154.27	2490.81	779.22	134.36	2462.34	804.99	145.66	2476.65
MV of bidders (in million $)	9207.37	3123.75	17006.95	16304.36	8108.68	20079.81	11804.97	4682.05	18489.78

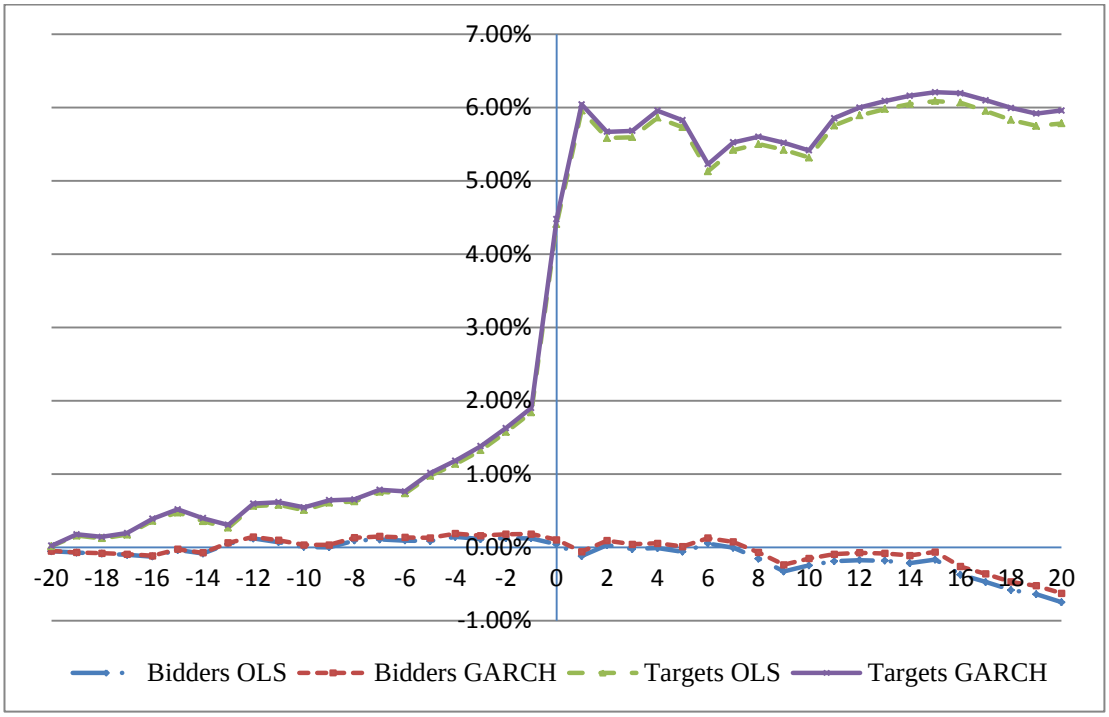
5.2.2. Empirical results

5.2.2.1. M&A announcement and market reaction

In line with the paper by Asimakopoulos and Athanasoglou (2013) and the previous replication attempt for 1990-2005, the patterns of the abnormal returns for bidders and targets are studied. Firstly, the important aspect of the day-to-day behaviour of the abnormal returns is analysed and reported in Figure 4 for the sample of 1990-2015. Similar to the findings in the previous chapter, the general pattern of the CARs for both bidders and targets is almost identical to the expected configuration. The abnormal returns for acquirers show almost zero reaction on the announcement date, gradually moving into the negative zone around the 8th day after the event date. On the other hand, the behaviour of the targets' CARs reflects the positive attitude of the market investors towards the opportunity to arbitrage on the merger-related stock premiums. The dramatic positive increase in CARs on the -1st and zero day is observable; abnormal returns grow up to maximum values of almost +6% on the 1st day after the announcement. Further, the positive effect persists for almost 15 days with brief falls around the 6th and 10th day after the announcement day. This trend is generally following the trend that was found for the 1990-2005 sample, differing only in above-mentioned negative daily reactions on the 6th and the

10th days. The run-up period, which is currently quite widely mentioned in the literature (Eckbo and Thorburn, 2000; Beltratti and Paladino, 2013) is also present in the results for the subsample of targets: the positive market reaction builds up beginning from the 13th day prior to the announcement, which is very similar to the run-up reaction since the 12th day prior to the announcement for the 1990-2005 sample. This effect can probably be caused by the market imperfections (information leakage, insider information, etc.), which can be more the case for the new EU-members comparing to the EU-15.

Figure 4. Cumulative abnormal returns for acquirers and targets (sample of 1990-2015)



Generally, the analysis of CARs for banking mergers in 1990-2015 has demonstrated that findings are in line with the initial paper by Asimakopoulos and Athanasoglou (2013) and are very close to the results for the sample of 1990-2005. As was expected, OLS estimations are downward biased if compared with the GARCH estimations. On average, bidders' abnormal returns are insignificant and negative (or close to zero) in all analysed event windows. The number of bidders with positive CARs is almost equal to the number of acquirers with negative CARs. On the other hand, the market reaction to the targets' involvement into M&A's is

positively reflected on the stock returns: targets' shareholders gain almost +1.06% on the announcement date and approximately +3.95% in (-20;+20) event window. It is worth admitting, that targets' abnormal returns are positive in all analysed event windows. Again, the obtained results are completely in line with the existing literature that utilises event study approach as a key methodology. The hypothesis of value creation for the bidders is rejected, while targets' shareholders can expect the growth of the company's value, implying positive market expectations of the future synergy gains exist. Beitel et al., (2004), Cybo-Ottone & Murgia (2000) and Ismail & Davidson (2005) have drawn similar conclusions in their studies.

Table 27. Cumulative abnormal returns of acquirers and targets at various intervals (total sample, a sample of 1990-2015).

Event window	Acquirers (N=459)				Targets (N=187)			
	CAR (%)		No. of deals		CAR (%)		No. of deals	
	OLS	GARCH	With positive CAR (OLS)	With negative CAR (OLS)	OLS	GARCH	With positive CAR (OLS)	With negative CAR (OLS)
(-20;0)	-0.12	-0.02	232	233	2.58[1,2]	2.78[1,2]	100	87
(-10;0)	-0.10	-0.02	227	237	2.13	2.22	104	83
(-1;1)	-0.35	-0.23	211	254	2.97[1,2]	2.99[1]	114	73
(0)	-0.07	0.02	222	241	1.06	1.02	100	87
(-10;10)	-0.12	-0.37	229	235	3.60[1,2]	3.80[1,2]	100	87
(-20;20)	-0.67	-0.77	221	245	3.95[1,2]	4.35[1,2]	88	99

Table 28. Cumulative abnormal returns of acquirers for different classifications of targets (GARCH estimation, a sample of 1990-2015).

Event window	Target listed (N=366)			Target not-listed (N=90)		
	CAR (%)		CAR difference	CAR (%)		CAR difference
	Domestic deals (N=224)	Cross-border deals (N=142)		Domestic deals (N=64)	Cross-border deals (N=26)	
(-20;0)	0.70	-0.21	0.92	-1.59[1,2]	-1.44[1,2]	-0.16
(-10;0)	0.83	-0.41	1.24*	-1.77[1,2]	-0.96	-0.82
(-1;1)	-0.10	-0.37	0.28	-0.49	0.07	-0.55
(0)	0.19	-0.18	0.36	-0.22	0.18	-0.40
(-10;10)	0.79	-1.03	1.81**	-2.47[1,2]	-1.79	-0.68
(-20;20)	0.50	-1.36[1,2]	1.86**	-2.85[1,2]	-3.42[1,2]	0.57

Notes: 1, 2 denote significance at the 5% level of significance for the BMP and the Corrado tests respectively. * (**) denote significance at the 5% (10%) level of significance for the CAR difference (t-test).

Further, the difference in the abnormal returns for bidders regarding the listed status of the target bank was studied. The results for domestic and cross-border M&A's are presented in Table 28. CARs were estimated by asymmetric GARCH technique. As is obvious from Table 28, it can be concluded that domestic M&A's outperform cross-border deals with listed targets. For instance, average CARs for the

domestic bidders are +0.19%, whereas international takeovers result in -0.18% losses for the acquirers on the announcement date. These observations are similar for all event windows: for longer event windows the difference between CARs is larger (compare +0.50% for domestic M&A's and -1.36% for international M&A's in (-20;+20) event window). Such difference can be attributed to the number of additional risks related to the cross-border expansion and international M&A's, which makes the market estimation of future gains more pessimistic. Similar to the previous findings, results for the bidders acquiring private targets testify, that abnormal returns in almost all event windows are negative. Both domestic and cross-border M&A's result in value destruction for the acquirers in the longer event windows (-2.47% and -1.79% respectively for the (-10;+10) event window and -2.85% and -3.42% for (-20;+20) event window). It is obvious that negative abnormal returns for the bidders involved in acquisitions with private targets can be explained by the lack of information considering target companies. In other words, the market investors are unable to estimate the quality and the composition of the acquired assets, thus reacting negatively to the perspective of future post-merger synergy gains. In general, above-mentioned results are in line with the initial findings by Cybo-Ottone and Murgia (2000) and Lepetit et al. (2004).

5.2.2.2. The determinants of value creation.

a) Estimations based on OLS

After analysing the abnormal returns with respect to the bank-related factors (public status, country of origin), it is necessary to apply regression analysis to estimate the key deal-related factors and accounting variables that are considered to be important in the existing literature (particularly, in Asimakopoulos and Athanasoglou, 2013). CARs for the (-1;+1) event window were selected as a dependent variable, as the abnormal returns from the shortest event window are less vulnerable to statistical problems and information leakages, but three days around announcement are considered to be able to incorporate the market reaction fully. The approach taken by Beitel et al. (2004), Cybo-Ottone and Murgia (2000), Ismail and Davidson (2005) is followed. The set of explanatory variables is identical to Asimakopoulos and Athanasoglou (2013) and was described in detail at the beginning of the previous chapter, where the paper by Asimakopoulos and Athanasoglou (2013) was replicated.

Similarly to the analysis of the replication sample, univariate models are first applied in order to establish the separate role of each explanatory variable and to determine significant variables for the multivariate regression. The obtained results have shown following. Firstly, the findings presented in Table 29a suggest that several variables are significant. The target dummy is significant at 1% level, implying that targets tend to receive higher abnormal returns after the merger announcement, which is in line with the initial hypothesis. Further, provisions-to-loans seem to have a positive impact on CARs, implying that higher volume of loan-guaranteeing funds provides positive signal to the market investors. Interestingly, deal value and company size were found to be significant at 1% level and in reverse relationship with abnormal returns. These results provide an indication that larger banks involved into larger deals are expected to obtain lower CARs and to experience problems during the period of the post-merger integration, following the market's point of view (possibly because of high costs and transactional expenses due to complicated and layered structured of the financial companies). The obtained results are somehow different from the findings considering the period of 1990-2005, primarily because of significance for the factors of the deal value and company size. Simultaneously, the findings for the broader sample period testify that the accounting variables (namely, ROE) and the year of the acquisition do not play any role in the value creation or destruction in the short run. Further, several multivariate regression specifications were analysed, including all significant variables from the previous univariate analysis. The findings demonstrate that target status dummy, provisions-to-loans ratio and high market dummy are significant (at 1%, 10% and 5% respectively) and positively correlated with the abnormal returns, whereas deal value is significant and negatively correlated with short-run CARs. These findings primarily support the previous conclusions on the higher merger gains by targets, that manage to achieve higher gains in the (-1;+1) horizon (by approximately 3.1%). The attempt to exclude the effect of target status resulted in significance for the bank size, which implies that mergers among larger banks generate lower short-term value gains. It is noteworthy that larger assets cause a negative effect on the post-merger abnormal returns.

Table 29a. Factors explaining the abnormal returns for the (−1, +1) window (OLS estimation, a sample of 1990-2015).

c	Target	Dom	Listed	Cult	ROE	Size	Liq	Prov	Eff	Nii-Ti	Value	Year	R^2	F
-0.351	3.32***												0.050	34.90*
0.749**		-0.369											0.001	0.29
0.135			-0.489										0.001	0.67
2.20				-0.0264									0.002	1.35
0.612**					0.0244								0.001	0.04
9.79***						-0.520***							0.020	10.55*
0.586**							0.0110						0.001	0.07
0.147								0.497**					0.009	5.96**
0.623**									-0.0329				0.001	0.37
-0.0568										1.76			0.002	1.53
1.17***											-0.345***		0.017	6.83*
0.417												1.42*	0.005	2.48
2.40	3.99***					-0.178		0.505*			-0.374***	2.02**	0.102	9.35*
1.10***						-0.609***		0.546*			-0.250*	2.10**	0.057	3.52**

Notes: *, **, *** denote significance at the 1%, 5% and 10% level of significance respectively.

c is the constant of the equation, Target is a binary variable taking the value of 1 if the bank is a target and the value of 0 otherwise, Dom is a binary variable taking the value of 1 if the M&A deal is a domestic one and the value of 0 otherwise, Listed is a binary variable taking the value of 1 if the bank lists its shares in an organised stock exchange and the value of 0 otherwise, Cult measures the cultural distance between the countries involved in the deal, ROE is the return of equity, Size is measured by the natural logarithm of total assets, Liq is the loans to deposits ratio, Prov is the provisions for loans losses to total loans ratio, Eff is the cost to income ratio, Nii_Ti is the contribution of interest related income to total income, Value is the value of the deal and YEAR is a binary variable that takes the value of 1 when the performance of the stock market was positive and the value of zero otherwise

Table 29b. Factors explaining the abnormal returns for the (−1, +1) window (Probit estimation, a sample of 1990-2015).

c	Target	Dom	Listed	Cult	ROE	Size	Liq	Prov	Eff	Nii-Ti	Value	Year	Pseudo R^2	LR
-0.101*	0.380***												0.0142	12.82*
0.012		-0.012											0.0001	0.02
0.105			-0.105										0.0005	0.46
0.073				-0.139									0.0019	1.68
0.027					-0.039								0.0004	0.34
0.128*						-0.241**							0.0051	4.64
0.097							-0.179*						0.0028	2.58
-0.001								0.016					0.0001	0.01
-0.015									0.048				0.0006	0.55
0.058										-0.101			0.0009	0.81
0.008											-		-	-
-0.014												0.156	0.0012	1.09
0.097	0.325***					-0.151	-0.140	-0.014	0.0585	-0.116			0.0973	17.81***
0.247**						-0.242**	-0.131	-0.014	0.0506	-0.140			0.0112	10.03*
0.036	0.335***					-0.117	-0.131						0.0177	15.86***
0.172**						-0.207**	-0.121						0.0082	7.34**

Notes: *, **, *** denote significance at the 1%, 5% and 10% level of significance respectively.

c is the constant of the equation, Target is a binary variable taking the value of 1 if the bank is a target and the value of 0 otherwise, Dom is a binary variable taking the value of 1 if the M&A deal is a domestic one and the value of 0 otherwise, Listed is a binary variable taking the value of 1 if the bank lists its shares in an organised stock exchange and the value of 0 otherwise, Cult measures the cultural distance between the countries involved in the deal, ROE is the return of equity, Size is measured by the natural logarithm of total assets, Liq is the loans to deposits ratio, Prov is the provisions for loans losses to total loans ratio, Eff is the cost to income ratio, Nii_Ti is the contribution of interest related income to total income, Value is the value of the deal and YEAR is a binary variable that takes the value of 1 when the performance of the stock market was positive and the value of zero otherwise

b) Estimation based on Probit method

Further, Probit estimation was applied to assess the influence of the deal-related factors and accounting data on the post-merger abnormal returns. As in the previous part of replication procedure, the median of variables was utilised as a dividing point to transform firm-related variables into dummy variables, taking only values of 0 or 1. The results are reported in Table 29b. Similarly to the OLS estimation, univariate analysis has demonstrated the significance of several variables, namely target dummy (at 1% level), liquidity ratio (loans-to-deposits)(at 10% level) and the size of the company (measured as the natural logarithm of total assets)(at 5% level). Identically to the OLS estimation, target dummy has a positive influence on the CARs, whereas size- and liquidity-related variables are negatively related to the post-merger abnormal returns. After estimating the several regression specifications, which included accounting variables and significant variables from the univariate regressions, it was revealed that the best model with R-squared of approximately 9.7% denotes target company dummy as the only significant variable. It is in line with our previous findings that targets are massively outperforming bidders in the European banking M&A's, and the status of acquired bank increases the probability to achieve value growth after the merger announcement.

c) Determinants of the share price reaction of acquirers and targets

Further, the necessity to distinguish between bidders and targets was actualised by the construction of the combined dataset, which included matched deals with full stock prices information and accounting data for both acquirers and bidders. The descriptive statistics of the implemented variables is presented in Table 30, indicating that acquirers compared to targets are in general more profitable, larger, have more liquid assets, have higher credit risk, are less efficient, and their income sources are less diversified.

Table 30. Basic descriptive statistics for a matching sample of acquirers and targets (sample of 1990-2015).

	Sample of 1990-2015						Sample by Asimakopoulos and Athanasoglou (2013)					
	Relroe	**Relsize**	**Relliq**	**Relprov**	**Releff**	**Rel-Nii-Ti**	**Relroe**	**Relsize**	**Relliq**	**Relprov**	**Releff**	**Rel-Nii-Ti**
Mean	2.4	1.10	1.19	0.84	1.11	3.36	2.41	1.28	1.16	0.82	0.88	0.85
Median	1.04	1.08	1.08	0.79	0.64	0.89	1.42	1.19	1.05	0.69	0.89	0.83
St. Dev	12.7	0.11	0.68	3.67	3.06	20.6	2.82	0.26	0.50	0.76	0.17	0.25
Obs	65	65	65	63	65	65	48	48	48	48	48	48

Notes: Relroe is the ratio of the ROE of the acquirers to the ROE of the targets, Relsize is the ratio of the natural logarithms of assets of the acquirers to the natural logarithm of assets of the targets, Relliq is the loans to deposits ratio of the acquirers divided by the respective ratio of the targets, Relprov is the provisions to total loans ratio of the acquirers divided by the respective ratio of the targets, Releff is the cost to income ratio of the acquirers divided by the respective ratio of the targets, Rel_Nii_Ti is the proportion of the interest-related income of the acquirers divided by the respective proportion of the targets.

Table 31 presents the results of the OLS regression analysis of accounting data variables. As was done before, firstly univariate regressions are applied, followed by wider inclusion of significant variables. Finally, probit estimation is deployed.

Surprisingly, the findings for bidders suggest that, in contrast to the results in a paper by Asimakopoulos and Athanasoglou (2013), there is no significant connection between independent variables and abnormal returns. Furthermore, the regression analysis for targets did not find any significant variables as well, except relative size, which seems to have significant positive effect on the post-merger CARs (at 1% significance level). This result leads to the conclusion that the larger is the difference between sizes of targets and bidders, the lower are value gains for the acquirers' shareholders. This is contradicting to the theory that assumes higher value creation in the merger deals between large bidders and small targets, as integration is simple and cost-effective (Pasiouras et al., 2007). Possibly, market investors do not expect valuable synergy gains from the merger of size-differing banks. Furthermore, although no other variables were found to be significant, the estimations for the subsample of matched bidders has shown, that shareholders of the involved banks obtain higher abnormal returns when the bidder is more profitable, more liquid and more efficient than the target. By contrast, the findings indicate that bidders' shareholders experience lower CARs when the target is less exposed to the credit risk (have higher provisions-to-loans ratio). Considering the targets, the results reinforce the previous findings, that the status of a target is itself a positive factor for the growth of shareholders' wealth. The lower size of a target is significant (at 1%) and positively correlated with abnormal returns, implying that the most profitable type of mergers for the target banks is to be taken over by a giant banking institution. In

general, looking at the signs of the estimated coefficients, the findings testify that targets' shareholders receive larger gains when the merger deal involves a more profitable, more liquid, less diversified and less effective bank.

The deployed probit regressions did not clarify the CARs behaviour any further, as none of the variables was found to be significant. In contrast to the previous findings, no evidence of importance for the factors of profitability, efficiency and liquidity was found. The previous studies also failed to establish a significant connection by applying probit technique (Beitel et al., 2004; Lepetit et al., 2004).

Table 31. Factors explaining the abnormal returns of acquirers and targets for the (−1, +1) window (sample of 1990-2015).

Panel A: Acquirers (OLS estimation)

c	Relroe	Relsize	Relliq	Relprov	Releff	Rel-Nii-Ti	R^2-adjusted	F (LR for probit)
-1.18***	0.027						0.004	0.26
5.27		-5.810					0.015	0.93
-1.91			0.668				0.007	0.44
-0.877				-0.071			0.002	0.14
-1.36***					0.222		0.016	1.00
-1.14						0.066	0.001	0.04
5.03	0.022	-6.220	0.530	-0.083	0.203	0.051	0.039	0.38
Probit estimation								
0.011	0.246	-0.166	-0.065	-0.511	0.437	0.863	0.038	3.40

Panel B: Targets (OLS estimation)

c	Relroe	Relsize	Relliq	Relprov	Releff	Rel-Nii-Ti	R^2-adjusted	F (LR for probit)
04.38*	0.146						0.029	1.85
-7.60		20.3***					0.044	2.89
4.84***			-0.091				0.000	0.00
4.65*				0.164			0.003	0.18
5.33*					-0.542		0.023	1.47
4.52*						0.064	0.014	0.92
5.03	0.022	-6.22	0.53	-0.083	0.203	0.051	0.039	0.38
Probit estimation								
-1.631	0.468	0.996	1.081	-0.296	0.016	0.998	0.157	14.14**

Notes: *, **, *** denote significance at the 1%, 5% and 10% level of significance respectively. c is the constant of the equation, Relroe is the ratio of the ROE of the acquirers to the ROE of the targets, Relsize is the ratio of the natural logarithms of assets of the acquirers to the natural logarithm of assets of the targets, Relliq is the loans to deposits ratio of the acquirers divided by the respective ratio of the targets, Relprov is the provisions to total loans ratio of the acquirers divided by the respective ratio of the targets, Releff is the cost to income ratio of the acquirers divided by the respective ratio of the targets, Rel_Nii_Ti is the proportion of the interest-related income of the acquirers divided by the respective proportion of the targets. For the probit estimation, all variables take the value of 1 when their values are above the cross-section median and the value of zero otherwise. R2 are adjusted R2 for OLS estimations and McFadden R2 for the probit estimations, F and LR are the F and the likelihood ratio statistics for the OLS and the probit estimations respectively.

5.3. Conclusion

The study of Asimakopoulos and Athanasoglou (2013) on the European banking mergers was replicated and extended the initial period of 1990-2004 up to 2015. The short-run post-merger outcomes for the European banking mergers were investigated, and it was revealed that the obtained results were in line with the initial findings by authors. Primarily, the almost identical behaviour of the stock returns for bidders and targets around the announcement date was observed: persistent positive abnormal returns for targets and negative or zero abnormal returns for bidders. Furthermore, the phenomenon of the "price run-up" prior to the announcement date was also confirmed (since the 10^{th} day before the deal). Generally, no decisive evidence was found to support the hypothesis that bidders' shareholders create value. The targets, however, are able to increase the wealth of shareholders by approximately +2.5% in the (-1;+1) event window. Domestic M&A's were found to be outperforming cross-border acquisitions, supporting the hypothesis that the market investors are discouraged with risks connected with international expansion. Thus, even despite the efforts of the European authorities to harmonise the financial markets, cross-border mergers are still not creating value for the bidders. The results for the extended sample that incorporates all the merger deals beginning from the 1990s to 2015 in the EU-28 have shown similar behaviour for the CARs: strong positive reaction for the bidders and insignificant, zero-close abnormal returns for the bidders. It was also found that domestic M&A's outperform cross-border acquisitions.

The regression analysis has shown that accounting data has little influence on the short-term merger outcomes. Among the accounting-related variables, only profitability and provisions-to-loans ratio profitability were reported to be significant. The most important deal-related factors were bank size and target status. On average, the results provide slightly less explanatory power for the variables than the findings by Asimakopoulos and Athanasoglou (2013), although there is evidence that smaller and less profitable banks generate higher CARs for both bidders and targets. After analysing the sample of 1990-2015, it was found that the most value-generating mergers are deals between smaller banks with higher profitability and lower credit risks.

6. Conclusion

The European banking industry has undergone a series of changes and transformations since the early 1990s when the EU authorities initiated the processes to form the common financial market. Since then, the European Union has increased the number of member countries to 28 states, adopted crucial changes in the legislation, and introduced the new common currency – euro. The banking sector became more internationalised, and the financial institutions consolidated more actively, mainly by involving themselves into M&A's. The objective of the thesis was to re-assess the short-run results of takeovers, utilising the combination of market-based and accounting data approaches. The key focus of the research was concentrated on the replication of the existing papers by Ekkayokkaya et al. (2009) and Asimakopoulos and Athanasoglou (2013) and extending the scope of the studies to assess the effect of the global financial crisis on the banking M&A's outcomes..

First, the study by Ekkayokkaya et al. (2009) was replicated, and the analysis was extended to the broader sample comprising the period between 1990 and 2015. Several sub-periods were outlined: the pre-euro (1990-1995), "run-up" to the euro (1996-1998) and post-euro period (2000-2004)(to reflect the role of the adoption of the euro). In the same manner, the effects of the financial crisis were captured by distinguishing four periods: the initial period of growth (1990-2000), pre-crisis period (2001-October 2007), the period of the financial crisis (November 2007-December 2009), post-crisis period (2010-2015). The findings testify that CARs for the banking mergers decreased after the adoption of the euro, reflecting the tighter competition among banking institutions. This negative effect definitely outweighed the positive effect of eliminated currency-related barriers between EU member states. Similar to the results by Ekkayokkaya et al., (2009) the largest value gains were observed during "run-up" period (1996-1998), whereas the post-euro period resulted in the poorest short-run abnormal returns for acquirer banks. These findings testify that some European banks were able to anticipate the introduction of the euro and benefit from positive market conditions.

The role of the Eurozone membership was also analysed. The mergers involving targets outside the Eurozone show much better results, resulting in the significant value creation in the post-euro period. Remarkably, the same trend is observable for the post-crisis period (2010-2015), when acquirers obtained

significant average gains of +1.69%. These findings indicate that the competition for the banking assets in the Eurozone after the elimination of barriers and introduction of the euro has increased, motivating European banks to look elsewhere for takeover targets. Furthermore, our results also imply, as was previously indicated, that the market investors are highly appreciating the efforts to diversify geographically, rewarding acquirers with higher returns.

Even more clear results were obtained for the role of the financial crisis. The period between 2007 and 2009 was devastating for the bidder banks that engaged into M&A's. On average, acquirers' shareholders were losing almost -1.15% of their wealth in the short run horizon (up to 10 days around the announcement date). Interestingly, focused domestic acquisitions suffered the worst losses, which can be interpreted as market's good attitude towards the operational and geographic types of diversification, which are demanded from banks in terms of the crisis. Nevertheless, only mergers between banks and investment firms resulted in positive CARs for the acquirers in the analysed period. Overall, the financial crisis was a major negative factor responsible for extremely poor merger outcomes and the decrease of the number and the volume of the acquisitions in the EU. The banking institutions appeared to be unable to benefit from low premiums, as the sceptical market attitude towards possible future synergy gains made the wealth gains impossible for the bidders.

Overall, the results of the analysis indicate that both external shocks (introduction of the euro and global financial crisis) had significant negative impact on the abnormal returns of the bidder banks and rejected the possibility to increase shareholders' wealth for acquirers.

Further, the combined approach by Asimakopoulos and Athanasoglou (2013) was applied, and the analysis in Chapter 5 implemented both market-based and accounting data approaches to estimate the role of deal-specific and bank-specific factors in the process of the post-merger value creation. By applying event study approach and further regression analysis (OLS, GARCH and Probit estimation techniques), extended sample of banking merger deals in 1990-2015 was examined. Unlikely to the existing literature, the European Union was considered in its modern configuration of EU-28, reflecting the converging financial markets and banking sectors of the member states.

Overall, the findings of Asimakopoulos and Athanasoglou (2013) were confirmed. In line with the existing literature on banking mergers, it was found that bidders do not create value for their shareholders in the short run. On the other hand, targets' shareholders experience substantial and significant growth in value (approximately +3.6% in the horizon of 10 days after the announcement). Other interesting evidence is that cross-border M&A's do not create gains for bidders, and can be even value-destroying in some cases. This finding primarily demonstrates the concerns of investors for the information transparency in the international scope, legislative and regulatory barriers between EU member countries, cultural differences, etc. As a result, it is highly probable that the financial homogenization processes that started in the EU in the early 1990s are still far from completion. The market beliefs are still cautious towards the potential perspectives of international synergy-creating banking mergers.

The regression analysis demonstrated that accounting variables are weak in explaining short-run merger outcomes. It was observed that the large size of the involved companies and the deal value are negatively correlated with the post-deal value creation. This finding can be explained by high costs of the post-merger integration and problems with setting up the harmonised structure of the combined entity, implying that larger mergers are less likely to result in positive synergies after the acquisition. The proxy to estimate credit risk, provisions-to-loans-ratio, is the only accounting variable that was found to be significant and positively correlated with the wealth gains for both targets and bidders, confirming the initial hypothesis that financial stability remains an important part of the strategy allowing to involve into M&A's effectively and successfully.

Overall, it was confirmed that the European banking mergers are not value-creating. Furthermore, the market inefficiencies still hinder the cross-border expansion, as banks prefer to be active more in the domestic markets (although the majority of such mergers are value destroying as well). These findings lead to the conclusion that synergy motive is not valid in the European banking mergers, whereas hubris and agency theories seem to explain the M&A activities better. Among the obvious implications of the thesis the following can be mentioned. First, the managers and other decision-makers of the banking institutions would be able to define the optimal targets according to the deal configuration and accounting variables. Second, the general advise for the banking institutions is to refrain from

being involved into M&A' during the periods of external shocks (financial crisis) or regulatory transformations (introduction of common currency etc.). Thirdly, the market is much more actively reacting to the deal parameters (cash payment, listed status) comparing to the accounting data variables. Thus, it is highly probable that choosing appropriate payment type can be more value-generating strategy in the short-term.

Finally, the limitations of the thesis should also be outlined. First, the analysis focuses on publicly available data only (due to data availability and access to the databases with relevant financial data). Thus, the substantial number of private banking institutions is excluded from the investigation. Secondly, the thesis omits the aspect of government-related acquisitions, nationalisations, bail-outs or forced mergers. As the problem of liquidity crisis intensified since 2010, more banks were struggling to cope with regulations and stable performance. However, the number of such government-related takeovers is relatively few in the scope of the banking sector in general. Additionally, data availability and information transparency are also problem issues if this category of banking mergers is studied. Finally, combining event study approach with more sophisticated accounting-based methods (DEA, SFA) can be the more effective approach, as short-term market assessment and long-term consequences for the banks' efficiency can be analysed jointly.

To sum up, the thesis provides a comprehensive examination of short-term outcomes of the European banking M&A's from different perspectives. The results are in line with the existing literature, confirming zero wealth gains for the bidders at best, and high exposure of M&A outcomes to the external shocks. These findings may help potential investors to find optimal value-enhancing strategies and obtain maximum benefits from potential M&A activities.

7. References:

1. Abreu, M. and Mendes V. (2001). Commercial bank interest margins and profitability: evidence from some EU countries. Presented at the Pan-European Conference, jointly organised by the IEFS-UK & University of Macedonia Economic & Social Sciences, Thessaloniki, Greece, May 17-20.

2. Agrawal, A., Jaffe J.F., and Mandelker G.N. (1992). The Post-Merger Performance of Acquiring Firms: A Re-examination of an Anomaly. Journal of Finance, 47: 1605-1621.

3. Aigner, D.J., Lovell, C.A.K. and Schmidt, P.J. (1977). Formulation and estimation of stochastic frontier production function models. Journal of Econometrics, 6: 21–37.

4. Akhavein, J. D., Berger, A. N. and Humphrey, D. B. (1997). The effects of megamergers on efficiency and prices: evidence from a bank profit function. Review of Industrial Organization, 12 (1), 95-139.

5. Akhigbe, A., Madura, J., and Whyte, A.M. (2004). Partial Anticipation and the Gains to Bank Merger Targets. Journal of Financial Services Research 26, No.1: 55.71.

6. Aktas, N., de Bodt, E., Roll, R. (2007). Is European M&A regulation protectionist? Economic Journal 117, 1096–1121.

7. Al-Sharkas, A. A. and Kabir Hassan, M. (2010). New evidence on shareholder wealth effects in bank mergers during 1980-2000. Journal of Economics and Finance, 34 (3), 326-348.

8. Al-Sharkas, A. A., Hassan, M. K., Lawrence, S. (2008). The Impact of Mergers and Acquisitions on the Efficiency of the U. S. Banking Industry: Further Evidence. Journal of Business Finance & Accounting 35(1–2): 50–70.

9. Alcalde, N., and Espitia, M. (2003). The Characteristics of Takeover Targets: The Spanish Experience 1991-1997. Journal of Management & Governance (2003) 7, 1-26.

10. Alexandridis, G., Zhao, H., and Antoniou, A. (2006). Belief Asymmetry and Gains from Acquisitions. Journal of Multinational Financial Management, Vol.18, pp. 443-460.

11. Alexandridis, G., Mavrovitis, C. F., and Travlos, N. G. (2012). How have M&A's changed? Evidence from the sixth merger wave. European Journal of Finance, Vol. 18 No. 8, pp. 663–688.

12. Ali-Yrkko, J. (2002). Mergers and acquisitions: Reasons and Results. Discussion paper series, No. 792, The Research Institute of the Finnish Economy (ETLA).

13. Aliber, R. (1970). A theory of foreign direct investment in the international corporation. (Ed.) C. Kindleberger, Cambridge, MA, MIT Press, pp. 54-89.

14. Altunbas, Y. and P. Molyneux (1996). Economies of Scale and Scope in European Banking. Applied Financial Economics 6(4), 367-375.

15. Altunbas, Y., J. Goddard and P. Molyneux, (1999). Technical change in banking. Economics Letters 64(2): 215-221.

16. Altunbas, Y., Evans, L. and Molyneux, P. (2001). Ownership and efficiency in banking. Journal of Money, Credit and Banking, Vol. 33 (4), pp. 926–54.

17. Altunbas, Y. and Ibanez, D. M. (2004). Mergers and acquisitions and bank performance in Europe - The role of strategic similarities. ECB Working Paper Series No. 398, European Central Bank. Frankfurt, Germany.

18. Altunbas, Y. and D. Ibanez (2008). Mergers and acquisitions and bank performance in Europe: the role of strategic similarities. Journal of Economics and Business 60(3), 179-290.

19. Ambrose, B. W. and Megginson, W. L. (1992). The Role of Asset Structure, Ownership Structure, and Takeover Defences in Determining Acquisition Likelihood. Journal of Financial and Quantitative Analysis, Vol. 27 (4), pp. 575-589.

20. Amel, D., Barnes C., Panetta F. and Salleo C. (2004). Consolidation and efficiency in the financial sector: A review of the international evidence. Journal of Banking & Finance. Volume 28, Issue 10, October 2004, Pages 2493–2519.

21. Amihud, Y., DeLong G.L., Saunders A. (2002). The effects of cross-border bank mergers on bank risk and value. J. Int. Money Financ 21(6):857–877.

22. Aminian, C., Campart S. and Ptisfer E. (2005). Macroeconomic determinants of cross-border mergers and acquisitions: European and Asian evidence. Paper presented at the international conference held at the University of Le Havre on September 28th and 29th.

23. Anderson, C., Becher, D. and Campbell T. (2004). Bank mergers, the market for bank CEOs, and managerial incentives. Journal of Financial Intermediation, Volume 13, pp. 6-28.

24. Andrade, G., Mitchell, M.L. and Stafford, E. (2001). New evidence and perspectives on mergers, Journal of Economic Perspectives. Volume 15, pp.103–120.

25. Ang, J. and Kohers N. (2001). The Take-Over Market for Privately Held Companies: The US Experience, Cambridge Journal of Economics, 25(6), pp. 723-748.

26. Ang, J. S. and Y. Cheng (2003). Direct evidence on the market-driven acquisitions theory. The Journal of Financial Research XXIX(2): 199–216.

27. Ang, J.S. and Cheng, Y. (2006). Direct evidence on the market-driven acquisition theory. Journal of Financial Research, 29, 199-216.

28. Antoniou, A., D. Petmezas, and H. Zhao (2007). Bidder Gains and Losses of Firms Involved in Many Acquisitions. Journal of Business Finance and Accounting, 34(7 and 8), 1221-1244.

29. Asimakopoulos, I., Athanasoglou, P. P. (2013). Revisiting the merger and acquisition performance of European banks. International Review of Financial Analysis, Vol. 29, 237-249.

30. Asquith, P. (1979). Mergers and the market for acquisitions. Unpublished working paper (University of Chicago, Chicago, IL).

31. Asquith, P. and E. H. Kim (1982). The Impact of Merger Bids on the Participating Firms' Security holders. Journal of Finance 37, no. 5 (December): 1209-218.

32. Asquith, P. (1983). Merger Bids, Uncertainty, and Stockholder Returns. Journal of Financial Economics 11, no. Special Issue: 51-83.

33. Asquith, P., R.F. Bruner and D.W. Mullins, Jr. (1983). The gains to bidding firms from merger. Journal of Financial Economics 11, 121-139

34. Auerbach, A. (2009). Implementing the New Fiscal Policy Activism. American Economic Review: Papers and Proceedings 99:2: 543-549.

35. Aw, M. and Chatterjee, R. (2004). The Performance of UK Firms Acquiring Large Cross Border & Domestic Takeover Targets. Applied Financial Economics 14, 337 -349

36. Baillie, R.T., Bollerslev, T. (1990). A multivariate generalised ARCH approach to modelling risk premia in forward foreign exchange rate markets. Journal of International Money and Finance 9, 309–324.

37. Baker, R. D. and Limmack R. I. (2001). UK takeovers and acquiring company wealth changes: the impact of survivorship and other potential selection biases on post-outcome performance. University of Sterling, Paper EFMA Congress 2001, Lugano, April 2001.

38. Baker, M., and J. Wurgler (2002). Market timing and capital structure. Journal of Finance 57:1-32.

39. Baker, M., R. Greenwood, and J. Wurgler (2009). Catering through nominal share prices. The Journal of Finance 64 (6), 2559–2590.

40. Ball, R. and Brown, P. (1968). An empirical evaluation of accounting income numbers. Journal of Accounting Research 6, 159-178.

41. Bank Recovery and Resolution Directive 2014/59/EU (2014). On establishing a framework for the recovery and resolution of credit institutions and investment firms. Official Journal of the European Union, L 173/190.

42. Baradwaj, B., D. Fraser and E. Furtado (1990). Hostile bank takeover offers: Analysis and implications. Journal of Banking and Finance 14, 1229-1242.

43. Barber, B. M. and Lyon, J. D. (1997). Detecting long-run abnormal stock returns: The empirical power and specification of test statistics. Journal of Financial Economics 43, 341-372.

44. Barrel, R., and Pain, N. (1996). An econometric analysis of U.S. foreign direct investment. The Review of Economics and Statistics, 78(2), 200-207.

45. Batchelor, R., and Orakcioglu I. (2003). Event-related GARCH: the impact of stock dividends in Turkey. Applied Financial Economics 2003 (13), 295-307.

46. Battese, G.E. and T.J. Coelli (1995). A Model of Technical Inefficiency Effects in a Stochastic Production Function for Panel Data. Empirical Economics 20: 325-332.

47. Beccalli, E. and Frantz, P. (2009). M&A Operations and performance in banking. Journal of Financial Services Research, Vol. 36 (2), pp. 203-226.

48. Becher, D. (2000). The valuation effects of bank mergers. J. Corp. Finance 6, 189–214.

49. Becher, D., and Campbell, T. (2005), Interstate Banking Deregulation and Changing Nature of Bank Mergers. The Journal of Financial Research. Volume 28, Issue 1, pp. 1-20.

50. Becht, M., Bolton, P., Roell, A. (2003). Corporate governance and control. Handbook of the Economics of Finance. 1, 1-109.

51. Beitel P., Schiereck D. and Wahrenburg M. (2004). Explaining M&A success in European banks. Eur. Financ. Manag. 10:109–139.

52. Beltratti, A. and Paladino G. (2013). Is M&A different during a crisis? Evidence from the European banking sector. Journal of Banking and Finance, Feb. 2013.

53. Ben-Amar, W. and P. Andre. (2006). Separation of Ownership and Control and Acquiring Firm Performance: The Case of Family Ownership in Canada. Journal of Business Finance and Accounting, 33 (3) and (4), April/May, pp. 517-543.

54. Berger, A.N., and D.B. Humphrey (1992). Megamergers in Banking and the Use of Cost Efficiency as an Antitrust Defense. Antitrust Bulletin 37: 541-600.

55. Berger, A. N., and L. J. Mester (1997). Beyond the Black Box: What Explains Differences in the Efficiencies of Financial institutions?, Journal of Banking and Finance, 21, (1997).

56. Berger, A. N. (1998). The Efficiency Effects of Bank Mergers and Acquisition: A Preliminary Look at the 1990s Data, In Bank Mergers & Acquisitions, edited by Yakov Amihud and Geoffrey Miller, Kluwer Academic Publishers, 1998.

57. Berger, A. N., R. S. Demsetz and P. E. Strahan (1999). The consolidation of the financial services industry: causes, consequences, and implications for the future. Journal of Banking and Finance, 23, 135-94.

58. Berger, A. N., R. DeYoung, H. Genay and F. Udell (2000). Globalization of Financial Institutions: Evidence from Cross-Border Banking Performance. Brookings-Wharton Papers on Financial Services 2000: 9.

59. Berger, A. N., DeYoung, R. and Udell, F. (2001). Efficiency barriers to the consolidation of the European financial services industry. European Financial Management 7, 117–130.

60. Berger, A. N. (2007), Obstacles to a Global Banking System: Old Europe versus New Europe. Journal of Banking and Finance, Vol. 31, pp. 1955-1973.

61. Berger, A. N., and C.H.S. Bouwman (2009). Bank liquidity creation. Review of Financial Studies 22: 3779-3837.

62. Berkovitch, E. and Khanna N. (1991). How target shareholders benefit from value reducing defensive strategies in takeovers. Journal of Finance, 45:137—156, 1990.

63. Berkovitch, E. and Narayanan, M.P. (1993). Motives for Takeovers: An Empirical Investigation. Journal of Finance and Quantitative Analysis, 28: pp. 347-362.

64. Bernad, L. Fuentelsaz, and J. Gomez (2010). The effect of mergers and acquisitions on productivity: An empirical application to Spanish banking. Omega, 38(5): 283–293.

65. Beverley, L. (2008). Stock Market Event Studies and Competition Commission Inquiries. CCP Working Paper 08-16.

66. Black, F. (1972). Capital Market Equilibrium with Restricted Borrowing. The Journal of Business, Vol. 45. 45, No. 3, pp. 444-455.

67. Blair, R.D. and Harrison, J. (1993). Monopsony: Antitrust Law and Economics. Princeton, New Jersey, Princeton University Press.

68. Boisi, G. T, Essig. S. (1994). Development of the M&A Market. McGraw & Hill, New York.

69. Bollerslev, T. (1986). Generalized autoregressive conditional heteroskedasticity. Journal of Econometrics 31: 307-327.

70. Bradley, M. (1980). Interfirm tender offers and the market for corporate control, Journal of Business 53, no. 4, 345-376.

71. Bradley, M., A. Desai and E.H. Kim (1982). Specialized resources and competition in the market for corporate control. Typescript. Ann Arbor: University of Michigan, Graduate School of Business.

72. Brady, U., and R. Feinberg (2000). An examination of stock-price effects of EU merger control policy. International Journal of Industrial Organization, 18(6), 885–900.

73. Brar, G., Giamouridis, D. and Liodakis, M. (2009). Predicting European Takeover Targets. European Financial Management, vol. 15:2.

74. Bresler, N. (2007). The challenge to reposition three divergent higher education institutions as a new comprehensive institution. South African Journal of Economic and Management Sciences, 10(2), 195-206.

75. Bris, A., and C. Cabolis (2008). The value of investor protection: Firm evidence from cross-border mergers. Review of Financial Studies 21, 605-648.

76. Brockett, P.L., Chen H.M., Garven J.R. (1994). Event study methodology: a new and stochastically flexible approach. Working paper, University of Texas, Austin.

77. Brown, S. J. and Warner J. B. (1980). Measuring security price performance. Journal of Financial Economics, 8, 205-258.

78. Brown, S. J. and Warner J. B. (1985). Using daily stock returns: The case of event studies. Journal of Financial Economics, 14, 205-258.

79. Bruner, R. F. (2002). Does M&A pay? A survey of evidence for the decision-maker, Journal of Applied Finance, 12(1), 48-68.

80. Buch, C., and DeLong, G. (2003). Determinants of cross-border mergers in Europe: Is Europe different? In: Herrmann, H., Lipsey, R. (eds.), Foreign direct investment in the real and financial sector of industrial countries. Springer: Heidelberg and New York.

81. Buch, C. M., and G. L. DeLong (2004). Cross-border bank mergers: What lures the rare animal? Journal of Banking and Finance 28:2077–2102.

82. Buch, C.M, Kleinert, J., Lipponer, A. and Toubal, F. (2005). Determinants and effects of foreign direct investment: evidence from German firm-level data. Economic Policy, Vol. 20, No. 41, pp. 51-110.

83. Cable, J.R., J.P.R. Palfrey, J.W. Runge (1980). Federal Republic of Germany, 1964–1974. In: Mueller, D.C. (ed.): The Determinants and Effects of Mergers: An International Comparison, Cambridge, MA, 99–132.

84. Cabral, I., Dierick F. and Vesala J. (2002). Banking integration in the Euro Area. European Central Bank, Occasional Papers Series, (6).

85. Cakici, N., C. Hessel and K. Tandon (1996). Foreign Acquisitions in the United States: Effect on Shareholder Wealth of Foreign Acquiring Firms. Journal of Banking and Finance, 20, 307-329.

86. Campa, J.M. and Hernando, I. (2004). Shareholder value creation in European M&As. European Financial Management 10 (1), 47–81.

87. Campa, J. M. and I. Hernando (2006). M&A performance in the European financial industry. Journal of Banking & Finance 30, 3367-3392.

88. Campbell, J.Y., Lo, A. and MacKinlay, A. C. (1997). The Econometrics of Financial Markets. Princeton University Press, Princeton, N.J.

89. Cannella, A. and Hambrick, D. C., (1993). Effects of executive departures on the performance of acquired organizations. Strategic Management Journal, 14: 137-152.

90. Capital Adequacy Directive, 93/6/EEC (1993). Official Journal L 141, 11/06/1993 P. 0001 - 0026.

91. Capital Requirements Directive 2013/36/EU (2013). On access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms. Available from http://data.europa.eu.

92. Carbo-Valverde, S., Humphrey D., and del Paso R. L. (2003). The Falling Share of Cash Payments in Spain. Moneda y Crédito, 217, 167-190.

93. Carletti, E. and Vives, X. (2008). Regulation and competition policy in the banking sector. Occasional Paper 159, IESE, Public-Private Sector Research Center.

94. Caruana, J. (2005). Implementation of Basel II. Financial Markets, Institutions & Instruments, Vol. 14, No. 5, pp. 253-265.

95. Casu, B. and C. Girardone (2002). A comparative study of the cost efficiency of Italian bank conglomerates. Managerial Finance 28: 3-23.

96. Chamberlain, S. L. (1998). The Effect of Bank Ownership Changes on Subsidiary-Level Earnings. In Y. Amihud, G. Miller (Eds.), Bank Mergers and Acquisitions, Kluwer Academic Publisher.

97. Charnes, A., Cooper, W.W. and Rhodes, E. (1978). Measuring the efficiency of decision making units. European Journal of Operational Research 2, 429-444.

98. Chatterjee, R., and Meeks, G. (1996): The Financial Effects of Takeover: Accounting Rates of Return and Accounting Regulation. Journal of Business Finance & Accounting, Vol.23, Issue 5/6, pp. 851-868.

99. Cheng, D., B. Gup and L. Wall (1989). Financial determinants of bank takeovers. Journal of Money, Credit, and Banking, 21 (4), 524-536.

100. Chronopoulos, D. K., Girardone C. and Nankervis J. C. (2013). How do stock markets in the US and Europe price efficiency gains from bank M&A's? Journal of Financial Services Research 43(3):243-263.

101. Chronopoulos, D. K., Girardone C. and Nankervis J. C. (2011). Are there any cost and profit efficiency gains in financial conglomeration? Evidence from the accession countries. The European Journal of Finance, 17(8):603–621.

102. Claessens, S., Krahnen, J. and Lang, W.W. (2005). The Basel II reform and retail credit markets. Journal of Financial Services Research, Vol. 28, Nos. 1-3, pp. 5-13.

103. Clarke, R. and Ioannidis, C. (1994). Mergers and Excess Deposits: Some Evidence for the UK. International Journal of the Economics of Business, 1, pp. 377-385.

104. Clarke, R., and Ioannidis, C. (1996). On the relationship between aggregate merger activity and the stock market: Some further empirical evidence. Economics Letters, 53 (1996), pp. 349-356.

105. Coelli, T.J., D.S. Prasada Rao and G.E. Battese, (1998). An Introduction to Efficiency and Productivity Analysis. Kluwer Academic Publishers, Boston.

106. Coeurdacier, N., De Santis, R.A., Aviat, A., (2009). Cross-border mergers and acquisitions and European integration. Economic Policy 24, 55-106.

107. Collins, J.D., Holcomb T.R., Certo C.T., Hitt M.A., Lester R.A. (2009). Learning from doing: cross border mergers and acquisitions. J Bus Res 2009; 62: 1329–34.

108. Conn, R.L. (1985). A re-examination of merger studies that use the capital asset pricing methodology. Cambridge Journal of Economics, Vol.9, No.1, pp. 43-56.

109. Conn, R.C., Cosh, A., Guest, P. and Hughes, A., (2005). The impact on UK acquirers of domestic, cross border, public and private acquisitions. Journal of Business Finance and Accounting, 32, 815-870.

110. Copeland, T. E. and J. F. Weston, (1988). Financial Theory and Corporate Policy (3rd ed.). Addison-Wesley, Reading, MA.

111. Cornett, M. and H. Tehranian (1992). Changes in Corporate Performance Associated with Bank Mergers. Journal of Financial Economics 31, no. April: 211-34.

112. Cornett, M. M., McNutt, J. J. and Tehranian, H., (2006). Performance changes around bank mergers: Revenue enhancements versus cost reductions. Journal of Money, Credit and Banking, 38(4), 1013-1050.

113. Cornett, M.M., Hovakimian, G., Palia, D. and Tehranian, H. (2003). The impact of the manager shareholder conflict on acquiring bank returns. Working Paper, Boston College, MA.

114. Cosh, A. and P. Guest (2001). The Long-run Performance of Hostile Takeovers: UK Evidence. ESRC Centre for Business Research Working Paper No. 215, Centre for Business Research, University of Cambridge, September.

115. Council Directive 89/647/EEC, of 18 December 1989 on a Solvency Ratio for Credit Institutions (1989). Official Journal of the European Communities, No. L386.

116. Coutts, J. A., Mills, T. C., & Roberts, J. (1994). The Market Model and the Event Study Method: A Synthesis of the Econometric Criticisms. International Review of Financial Analysis, 3, 149-171.

117. Crane, D. B. and Linder, J. C. (1993). Bank mergers, integration and profitability. Journal of Financial Services Research, 7, 274–282.

118. Crouzille, C., Lepetit L., Bautista C. (2008). How did the Asian stock markets react to bank mergers after the 1997 Asian financial crisis? Pacific Economic Review, 13:171-182.

119. Cybo-Ottone, A. and Murgia M. (2000). Mergers and shareholder wealth in European banking. J Bank Financ 24:831–859.

120. Danbolt, J. (2004). Cross-border acquisitions into the UK - an analysis of target company returns. European Financial Management 10, 83-108.

121. DeFond, M. L. (2010). Earnings Quality Research: Advances, Challenges and Future Research. Journal of Accounting and Economics 50(2-3): 402-409.

122. DeLong, G. L. (2001). Stockholder gains from focusing versus diversifying bank mergers. Journal of Financial Economics, Vol. 59, pp. 221-252.

123. DeLong, G. (2003). Does long-term performance of mergers match market expectations? Evidence from the US banking industry, Financial Management, 32 (2), 5-25.

124. DeLong, G. and DeYoung R. (2007). Learning by observing: Information spillovers in the execution and valuation of commercial bank M&As. Journal of Finance, Vol. 62, pp. 181-216.

125. Demirguc-Kunt, A. and Huizinga H. (2001). Financial Structure and Bank Profitability in Financial Structure and Economic Growth: A Cross-Country Comparison of Banks, Markets, and Development. Eds. Asli Demirguc-Kunt and Ross Levine. Cambridge, MA: MIT Press, 2001.

126. DePamphilis, D. M. (2003). Mergers, acquisitions and other restructuring activities: an integrated approach to process, tools, cases and solutions (2 th Edition). Academic Press: 84 Theobalds Road, London, WC1X.

127. Dermine, J. (2002). Banking in Europe: past, present and future. In "The Transformation of European Banking System", Second ECB Central banking conference, pp. 32-95.

128. Dewenter, K.L. (1995). Do Exchange Rate Changes Drive Foreign Direct Investment? Journal of Business, 68(3), pp. 405-433.

129. Dewey, D. (1964). The economic theory of antitrust: Science or Religion? Virginia Law Review, pp. 413-434.

130. DeYoung, R. (1993), Determinants of Cost Efficiencies in Bank Mergers. Working Paper 93-1, Office of the Controller of the Currency, August 1993.

131. DeYoung, R. (1997). Bank mergers, X-efficiency, and the market for corporate control. Managerial Finance, 23 (1), 32-47.

132. Diaz, B. García, M., Sanfilippo, S. (2004). Bank acquisiitions and performance: evidence from a panel of European credit entities. Journal of Economics and Business, Vol. 56, N. 5, pp. 377-404.

133. Dodd, P. and Ruback, R. (1977). Tender Offers and Stockholder Returns: An Empirical Analysis. Journal of Financial Economics, 5, 351-374.

134. Dodd, P. and Warner, J. B. (1983). On Corporate Governance: A Study of Proxy Contests. Journal of Financial Economics 11(1), January 1983, pp. 401-438.

135. Dolley, J.C. (1933). Characteristics and Procedure of Common Stock Split-Ups. Harvard Business Review, pp. 316–26.

136. Dong, M., Hirshleifer, D., Richardson, S., and Teoh, S. H. (2006). Does investor misvaluation drives the takeover market. Journal of Finance 61, 725-762.

137. Doukas, J., and Travlos, N. G. (1988). The effect of corporate multinationalism on shareholders' wealth: evidence from international acquisitions. Journal of Finance, 43, pp. 1161–1175.

138. Doukas, J. (1995). Overinvestment, Tobin's q and Gains from Foreign Acquisitons. Journal of Banking and Finance 19, 1285-1303.

139. Draper, P., and Paudyal, K. (1999). Corporate Takeovers: Method of Payment, Returns and Trading Activity. In: Journal of Business Finance & Accounting, Vol. 26, Issue 5, pp. 521-558.

140. Draper, P. and Paudyal, K. (2006). Acquisitions: Private versus public. European Financial Management, 12(1), 57-80.

141. Dubofsky, D.A., and D.R. Fraser (1989). Regulatory Change and The Market for Bank Control. In: Bank Mergers: Current Issues and Perspectives, edited by Benton E. Gup, 121-39. Boston: Kluwer Academic Publishers.

142. Duso, T., D. Neven, L.-H. Röller, (2007). The political economy of European merger control: evidence using stock market data. Journal of Law and Economics, 50 (3) (2007), pp. 455–489.

143. Dyck, A., Zingales, L. (2004). Private benefits of control: An international comparison. Journal of Finance 59(2): 537 - 601.

144. Eckbo, B.E. (1983). Horizontal Hergers, Collusion, and Stockholder Wealth. Journal of Financial Economics 11, 241-273.

145. Eckbo, B.E. and Thorburn, K.S. (2000). Gains to bidder firms revisited: Domestic and foreign acquisitions in Canada. Journal of Financial and Quantitative Analysis, Vol. 35(1), pp. 1-25.

146. Ekkayokkaya, M., Holmes P. and Paudyal K. (2009). The Euro and the Changing Face of European Banking: Evidence from Mergers and Acquisitions. European Financial Management 15, 451-476.

147. Emmons, W., A. Gilbert, and T. Yeager (2004). Reducing the Risk at Small Community Banks: Is It Size or Geographic Diversification That Matters? Journal of Financial Services Research 25, 259-281.

148. Eun, C.S., R. Kolodny and C. Scheraga (1996). Cross-border Acquisitions and Shareholder Wealth: Tests of the Synergy and Internalisation Hypothesis. Journal of Banking and Finance, 20, pp. 1559-1582.

149. Eun, C. S. and Resnick B. G. (2012). International Financial Management, 6th edition, McGraw-Hill, Irwin.

150. European Central Bank Press Release, (2014). Decline in the number of monetary financial institutions continued in 2013. Published on 21st, January 2014.

151. Fama, E., Fisher, L., Jensen, M. and Roll, R. (1969). The Adjustment of Stock Prices to New Information. International Economic Review, 10, 1-21.

152. Fama, E. F. (1970). Efficient capital markets: a review of theory and empirical work. The Journal of Finance, 25(2), 383-417.

153. Fama, E. F. and French K. (1993). Common risk factors in returns on stocks and bonds. Journal of Financial Economics 33 (3), 56.

154. Fama, E. and French, K. (2000). Forecasting profitability and earnings. Journal of Business 73, 161–176.

155. Figueira, C., and Nellis, J. (2009) Bank merger and acquisitions activity in the EU. The Service Industries Journal.

156. Fiordelisi, F., Carretta A., Marina V., Schwizer P. (2008). Corporate Culture and performance in European Banking. Journal of Financial Decision Making, vol. 4, n.2, pp. 21-32.

157. Firth, M. (1980). Takeovers, Shareholder Returns, and the Theory of the Firm. Quarterly Journal of Economics 94, no. 2 (March): 235-60.

158. Fisher, F. M., and J. McGowan (1983). On the misuse of accounting rates of return to infer monopoly profits. American Economic Review 73 (1): 82–97.

159. Fishman, M.J. (1989). Pre-emptive bidding and the role of the medium of exchange in acquisitions. Journal of Finance, 44, pp. 41-57.

160. Fluck, Z. and Lynch, A. W. (1999). Why firms merge and then divest? A theory of financial synergy. Journal of Business 72, 319-346.

161. Focarelli, D. and A. F. Pozzolo (2001a). The patterns of cross-border bank mergers and shareholdings in OECD countries. Journal of Banking and Finance, 25, pp. 2305-2337.

162. Focarelli, D., and Pozzolo, A.F. (2001b). Where do banks expand abroad? Working Paper, Banca d'Italia, Rome.

163. Focarelli, D., Panetta, F. and Salleo, C. (2002). Why do banks merge? Journal of Money, Credit, and Banking, 34 (4), 1047-1066.

164. Forssback, J. and Oxelheim, L. (2008). Finance-specific Factors as Drivers of Cross-border Investments – An Empirical Investigation. International Business Review, 17, pp. 630 – 641.

165. Frames, S., and W.D. Lastrapes (1998). Abnormal Returns in the Acquisition Market: The Case of Bank Holding Companies. Journal of Financial Services Research 14, p. 145-163.

166. Francis, J., D. J. Nanda, and P. Olsson (2008). Voluntary disclosure, earnings quality, and cost of capital. Journal of Accounting Research 46, 53-100.

167. Franks, J., and Harris, R. (1989). Shareholder Wealth Effects of Corporate Takeovers - The UK Experience 1955-1985. Journal of Financial Economics, 23, 225-249.

168. Franks, J. and Harris, R. (1993). In European Mergers and Merger Policy, (Eds, Bishop, M. and Kay, J.), Oxford University Press, Oxford.

169. Fried, H.O., Lovell, C.A.K., Yaisawarng, S. (1999). The impact of mergers on credit union service provision. Journal of Banking and Finance 23, 367–386.

170. Fritsch, M., Gleisner, F. and Holzhäuser, M. (2007). Bank M&A in Central and Eastern Europe. Goethe University Frankfurt, Working paper.

171. Froot, K. and Stein, J. (1991). Exchange rates and FDI: an imperfect capital markets approach. Quarterly Journal of Economics 106, 1191–1127.

172. Froot, K.A. and Stein, J.C. (1998). Risk Management, Capital Budgeting, and Capital Structure Policy for Financial Institutions: an Integrated Approach. Journal of Financial Economics, 47, 55-82.

173. Fuller, K., Netter, I. and Stegemoller, M. (2002). What do returns to acquiring firms tell us? Evidence from firms that make many acquisitions. Journal of Finance, 57, 1763-1793.

174. Gammelgaard, J., (1999). A New Motive for Acquisitions – A Search for Excellence. Working Paper, Department of International Economics and Management, Copenhagen Business School.

175. Gartner, D., and D. Halbheer (2006). Are There Waves in Merger Activity After All?. Working Paper, University of Zurich.

176. Gaughan, P.A. (1996). Mergers, acquisitions and corporate restructuring, Wiley, New York.

177. Geroski, P. A. (1984). On the Relationship Between Aggregate Merger Activity and the Stock Market. European Economic Review, 25, 223-233.

178. Giammarino, R., and R. Heinkel (1986). A Model of Dynamic Takeover Behavior. Journal of Finance, 41, 465-481.

179. Goddard, J., Molyneux, P., and Zhou, T. (2012). Bank mergers and acquisitions in emerging markets: evidence from Asia and Latin America. The European Journal of Finance, 18(5), 419-438.

180. Goergen, M. and Renneboog, L. (2004). Shareholder wealth effects of European domestic and cross-border takeover bids. European Financial Management, 10, 9–45.

181. Goetz, M. (2012). Bank diversification, market structure and bank risk taking: theory and evidence from U.S. commercial banks. Risk and Policy Analysis Unit Working Paper QAU12-2, Federal Reserve Bank of Boston.

182. Gort, M. (1969). An Economic Disturbance Theory of Mergers. Quarterly Journal of Economics 83(4), 624-642.

183. Gregory, A. (1997). An examination of the long run performance of UK acquiring firms. Journal of Business Finance and Accounting, 24, 971–1007.

184. Gregory, A. and McCorriston, S. (2005). Foreign acquisitions by UK limited companies: short- and long-run performance. Journal of Empirical Finance, 12, 99–125.

185. Grossman, S.J., and O.D. Hart (1980). Takeover bids, the free-rider problem and the theory of the corporation. Bell J. Econ. 11, 42-64.

186. Group of Ten Report on Consolidation in the Financial Sector (2001). IMF, January 25, 2001.

187. Group of Thirty (2009). Financial Reform: A Framework for Financial Stability. Special Report, Washington DC.

188. Guerard, J. (1989). Mergers, stock prices and industrial production: Further evidence. Economics Letters, 30, 161-164.

189. Guest, P.M., Bild, M. and Runsten, M. (2010). The effect of takeovers on the fundamental value of acquirers. Accounting and Business Research 40 (4), 333−352.

190. Gugler, K, Mueller, D.C., and M. Weichselbauer (2012). The Determinants of Merger Waves: An International Perspective, International Journal of Industrial Organization, 30, 1-15.

191. Gupta, A., and Misra, L. (2007). Deal size, premium paid and the gains in financial mergers: The impact of managerial motivation. Working paper, Bentley College of Business. Available from http://business.utsa.edu/

192. Hadlock, C., J. Houston and M. Ryngaert (1999). The role of managerial incentives in bank acquisitions. Journal of Banking and Finance, 23, 221-249.

193. Hagendorff, J., M. Collins and K. Keasey (2007). Bank deregulation and acquisition activity: Cases of the US, Italy and Germany. Journal of Financial Regulation and Compliance, 15(2), 199–209.

194. Hagendorff, J., Keasey K. (2009). Post-merger strategy and performance: evidence from the US and European banking industries. Account Financ 49(4):725–751.

195. Hagendorff, J., Hernando, I., Nieto, M. J., and Wall, L. D. (2012). What do premiums paid for bank M&As reflect? The case of the European Union. Journal of Banking and Finance, 36, 749-759. Available from: http://dx.doi.org/

196. Haleblian, J., and Finkelstein, S. (1999). The influence of organizational acquisition experience on acquisition performance: A behavioral learning perspective. Administrative Science Quarterly, 44, 29–56.

197. Hamoir, O., McCamish, C., Niederkorn, M. and Thiersch, C. (2002). Europe's banks: Verging on merging. The McKinsey Quarterly 3, pp. 116-125.

198. Hankir, Y., R. Christian and M. P. Umber (2011). Bank M&A: A Market Power Story? Journal of Banking and Finance, 35, pp. 2341-2354.

199. Hannan, T. and Rhoades S. A. (1987). Acquisition targets and motives: The case of the banking industry. The Review of Economics and Statistics, 69 (1), 67-74.

200. Hannan, T., and Wolken J. (1989). Returns to Bidders and Targets in the Acquisition Process: Evidence From the Banking Industry. Journal of Financial Services Research 3 (October 1989), 5±16.

201. Hannan, T. H; and Pilloff, S. J. (2004). Will the Proposed Application of Basel II in the United States Encourage Increased Bank Merger Activity? Evidence from Past Merger Activity Board of Governors of the Federal Reserve System. Finance and Economics Discussion Series: 2004-13.

202. Hannan, T. and Pilloff S. (2006). Acquisition targets and motives in the banking industry. Board of Governors of the Federal Reserve System, FEDS Working Paper No. 2006-40.

203. Hansen, R.G. (1987). A theory for the choice of exchange medium in mergers and acquisitions. Journal of Business, 60: 75–95.

204. Harford, J. (2005). What Drives Merger Waves? Journal of Financial Economics, Vol. 77, No. 3, p. 483-702, 2005.

205. Harris, R.S. and D. Ravenscraft (1991). The Role of Acquisitions in Foreign Direct Investment: Evidence from the U.S. Stock Market. Journal of Finance, Vol. 46, No. 3 (July), pp. 825-844.

206. Haun, B. (1996). Fusionseffekte Bei Sparkassen. Empirische Analyse Der Zielerreichung, Weisbaden.

207. Hayashi, F. (1982). Tobin's Marginal Q and Average Q: A Neoclassical Interpretation. Econometrica 50 (January 1982): 213—224.

208. Hayward, M.L.A. (2002). When Do Firms Learn From Their Acquisition Experience? Evidence From 1990-1995. Strategic Management Journal 23, 21-39.

209. Healy, P., Palepu, K., Ruback, R. (1992). Does corporate performance improve after mergers? Journal of Financial Economics 31, 135 – 175.

210. Healy, P.M. and Palepu, K.G. (1993). International Corporate Equity Acquisitions: Who, Where and Why? Foreign Direct Investment, Kenneth A. Froot (ed.), The University of Chicago Press, Chicago and London.

211. Healy, P. M., Palepu, K. G. and Ruback, R. S. (1997). Which Takeovers are Profitable: Strategic or Financial? Sloan Management Review, Vol. 38, No. (4), pp. 45-57.

212. Henderson, G. (1990). Problems and Solutions in Conducting Event Studies. The Journal of Risk and Insurance, 57(2), pp. 282-306.

213. Hernando, I., Nieto M.J. and Wall L.D. (2009). Determinants of domestic and cross-border bank acquisitions in the European Union. Journal of Banking and Finance 33, 1022-32.

214. Hickman, B. (1953). The volume of corporate bond financing. National Bureau of Economic Research, New York.

215. Higgins, R. C. and Schall L. D. (1975). Corporate bankruptcy and conglomerate merger. Journal of Finance 30, 93-113.

216. Hodson, D., Quaglia L. (2009). European Perspectives on Global Financial Crisis: Introduction. J Common Mark Stud 2009; 47: 939–53.

217. Hosono, K., Sakai K., and Tsuru K. (2006). Consolidation of Corporative Banks (Shinkin) in Japan: Motives and Consequences. RIETI Discussion Paper 06-E-034.

218. House, R.J., Javidan M., Hanges P., and Dorfman P. (2002). Understanding Cultures and Implicit Leadership Theories Across the Globe: An Introduction to Project GLOBE. Journal of World Business, 37 (1), 3-10.

219. Houston, J. F. and Ryngaert M. (1994). The overall gains from large bank merger. Journal of Banking and Finance, 18: 1155-76.

220. Houston, J., James, M. and Ryngaert, M. (2001). Where do merger gains come from? Bank mergers from the perspective of insiders and outsiders. Journal of Financial Economics, 60, 285–331.

221. Huang, Y. and R. Walking (1987). Target Abnormal Returns Associated with Acquisition Announcements: Payment, Acquisition Form and Managerial Resistance. Journal of Financial Economics, Vol. 19, pp. 329-349.

222. Huang, R., Ritter, J. (2005). Testing the market timing theory of capital structure. University of Florida working paper.

223. Hubbard, R. G. and D. Palia (1999). A Reexamination of the Conglomerate Merger Wave in the 1960s: An Internal Capital Markets View. Journal of Finance 54, 1131-1152.

224. Hughes, J. P., W. W. Lang, and L. J. Mester (1999). The dollars and sense of bank consolidation. Journal of Banking and Finance 23, 291-324.

225. Humphrey, D. and Vale, B. (2004). Scale economies, bank mergers, and electronic payments: a spline function approach. Journal of Banking and Finance, 28 (7), 1671-1696.

226. Ikenberry, D., J. Lakonishok and T. Vermaelen (1995). The Underreaction to Open Market Share Repurchases. Journal of Financial Economics 39: 181–208.

227. Ilkovitz, F., A. Dierx, V. Kovacs and N. Sousa (2007). Steps Towards a Deeper Economic Integration: The Internal Market in the 21st Century. European Economy Economic Papers, No. 271.

228. Ismail, A.K. and I. R. Davidson (2005). Further Analysis of Mergers and Shareholder Wealth Effects in European Banking. Applied Financial Economics, 2005, vol. 15, issue 1, pages 13-30.

229. Ismail, A. and Davidson I. (2007). The Determinants of Target Returns in European Bank Mergers. The Service Industries Journal, Vol. 27, pp. 617-634.

230. Jackson, J. K. (2010). The Financial Crisis: Impact On and Response by the European Union. Congressional Research Service, 7-5700, R40415.

231. Jain, P. C. (1986). Analysis of the distribution of security: Market model prediction errors for daily returns data. Journal of Accounting Research, 24(1), 76-96.

232. James, C. M. and P. Wier (1987). Returns to Acquirers and Competition in the Acquisition Market: the Case of Banking. The Journal of Political Economy 95, 355-370.

233. Jarrell, G. A., J. A. Brickley, and J. M. Netter (1988). The Market for Corporate Control: The Evidence since 1980. Journal of Economic Perspectives 2:49–68.

234. Jarrell, G. A. and A. B. Poulsen (1989). The returns to acquiring firms in tender offers: Evidence from three decades. Financial Management 18, 12-19.

235. Jayaraman, N., Frye, M., and Sabherwal, S. (2001). Informed Trading around Merger Announcements: An Empirical Test Using Transaction Volume and Open Interest in Options Market. Financial Review 37, 45-74.

236. Jenny, F., and Weber, A.P. (1980). In: D.C. Mueller, (ed.), The Determinants and Effects of Mergers: An International Comparison, Cambridge, Mass.: Oelgeschlager, Gunn & Hain, pp. 133-62.

237. Jensen, M. and Meckling, W. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. Journal of Financial Economics, 3:4, October, pp. 305-360.

238. Jensen, M.C. and R.S. Ruback (1983). The Market for Corporate Control: The Scientific Evidence. Journal of Financial Economics. 11, pp. 5-50.

239. Jensen, M.C. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. American Economic Review 76: pp. 323-329.

240. Jensen, M.C. (1988). Takeovers: Their Causes and Consequences. Journal of Economic Perspectives 2: pp. 21-48.

241. Jones, J., W. Y. Lee and T. Yeager (2011). Opaque Banks, Price Discovery, and Financial Instability. Working Paper (May 11, 2011). Available at SSRN: http://ssrn.com/abstract=1458575

242. Jovanovic, B. and Rousseau, P. (2002). The Q-theory of mergers. American Economic Review, vol. 92 (2), Papers and Proceedings, pp. 198-204.

243. Kamien, M.I. and I. Zang (1993). Monopolization by Sequential Acquisition. The Journal of Law, Economics, & Organization, October, 9(2), 205-29.

244. Kanbay Report (2005). Effective dates for Basel II-related regulations in the US and UK: Basel II update, Kanbay Global Headquarters, Rosemont.

245. Kane, E. (2000). Incentives for Banking Megamergers: What Motives Might Regulators Infer From Event-Study Evidence? Journal of Money, Credit and Banking 32, 671-701.

246. Kang, J.K. (1993). International Market for Corporate Control. Journal of Financial Economics, 34, pp. 345-371.

247. Karceski, J., Ongena, S. and Smith, D. C. (2005). The Impact of Bank Consolidation on Commercial Borrower Welfare, Journal of Finance, 60 (4), 2043-2082.

248. Karolyi, G. A. and Taboada, A. G. (2014). Regulatory Arbitrage and Cross-Border Bank Acquisitions. Journal of Finance, forthcoming. Available at http://www.mccombs.utexas.edu

249. Kengelbach, J., Klemmer, D.C., Schwetzler, B., Sperling, M.O. (2012). An anatomy of serial acquirers: M&A learning and the role of post-merger integration. Working Paper, Leipzig Graduate School of Management.

250. Kim, E. H. and McConnell J. J. (1977). Corporate merger and the co-insurance of corporate debt. Journal of Finance 32, 349-365.

251. King, R. G. and Levine, R. (1993). Financial intermediation and economic development in financial intermediation in the construction of Europe. In: Colin Mayer and Xavier Vives (eds.), London: Centre for Economic Policy Research, pp. 156-89.

252. Kish, R. J., and G. M. Vasconcellos (1993). An Empirical Analysis of Factors Affecting Cross-Border Acquisitions: U.S. – Japan. Management International Review, 33(3), 227-245.

253. Kleinert, J., and Klodt, H. (2002). Causes and Consequences of Merger Waves. Kiel Working Paper No. 1092, Kiel Institute of World Economics.

254. Knapp, M., Gart, A. and Chaudhry, M. (2006). The impact of mean reversion of bank profitability on post-merger performance in the banking industry. Journal of Banking & Finance, 30 (12), 3503-3517.

255. Koehler, M. (2009). Transparency of Regulation and Cross-Border Bank Mergers. International Journal of Central Banking, Vol. 5(1), 39-74.

256. Koehler, M., (2010). The Facade of FCPA Enforcement. Georgetown Journal of International Law, Vol. 41, No. 4.

257. Koetter, M., J. W.B. Bos, F. Heid, J. W. Kolari, C. J. M. Kool and D. Porath (2007). Accounting for Distress in Bank Mergers. Journal of Banking and Finance 31, 3200-3217.

258. Koetter, M. (2008). An assessment of bank merger success in Germany. German Economic Review, Vol. 9 (2), 232-264.

259. Kolaric, S., and D. Schiereck (2013) Shareholder wealth effects of bank mergers and acquisitions in Latin America. Management Research: Journal of the Iberoamerican Academy of Management, Vol. 11, Iss. 2, pp.157-177.

260. Kothari, S. and Warner, J. (1997). Measuring Long-Horizon Security Price Performance. Journal of Financial Economics 43, 301-339.

261. KPMG (2010). Basel 3 Pressure is building. KPMG Financial Services, December 2010.

262. KPMG (2014). Evolving Banking Regulation 2014. KPMG Financial Services.

263. Krivin, D., Patton, R., Rose, E., Tabak, D. (2003). Determination of the Appropriate Event Window Length in Individual Stock Event Studies. Working Paper Series, Available from: http://papers.ssrn.com.

264. Kuipers, D., Miller, D., and Patel, A. (2009). The legal environment and corporate valuation: Evidence from cross-border takeovers. International Review of Economics and Finance, 18: 552–567.

265. Kumar, M. S. (1984). Growth, Acquisition and Investment, Cambridge: Cambridge University Press.

266. Kumps, A.-M., and R. Wtterwulghe (1980). Belgium, 1962-1974. In: D. C. Mueller (ed.), The Determinants and Effects of Mergers, Cambridge: Oelgeschlager, Gunn & Hain,.

267. Kwan, S. and Eisenbeis, R.A. (1999). Mergers of publicly traded banking organizations revisited. Federal Reserve Bank of Atlanta Economic Review, 4, 26-37.

268. Kwan, S. H., Flannery, M. J. and M. Nimalendran (2010). The 2007-09 Financial Crisis and Bank Opaqueness. Federal Reserve Bank of San Francisco, Working Paper Series 2010-27.

269. Kyei, K. (2008). The long term impact of large acquisitions on the share price performance of acquiring companies listed on the JSE. MBA Thesis. Gordon Institute of Business Science, University of Pretoria.

270. Kyriazopoulos, G., Drymbetas E. (2014). The long term impact of banks M&As in Europe: an integrated approach. European Journal of Business and Social Sciences, 1(3), pp 71-94.

271. La Porta, R., Lopez-de-Silanes F., Shleifer A. and Vishny R. W. (1998). Law and Finance. Journal of Political Economy, vol. 106, No. 6 (December 1998), pp. 1113-1155.

272. La Porta, R., F. Lopez-de-Silanes, A. Schleifer, R. Vishny, (2000). Investor protection and corporate governance. Journal of Financial Economics 58, 3-27.

273. Laabs, J.P., and Schiereck, D. (2010). The Long-Term Success of M&A in the Automotive Supply Industry: Determinants of Capital Market Performance. Journal of Economic Finance, 34, 61–88.

274. Lambertini, L. and Uysal P. (2014). Macroeconomic Implications of Bank Capital Requirements. Ecole Politechnique de Lausanne, working paper, February 2014.

275. Lamoureux, C. G., Lastrapes, W. (1993). Forecasting stock return variance: towards understanding stochastic implied volatility. Review of Financial Studies, 6. 1993.

276. Lang, G., and Welzel, P. (1996). Efficiency and Technical Progress in Banking: Empirical Results for a Panel of German Co-operative Banks. Journal of Banking and Finance, vol. 20, 1003-1023.

277. Lang, G., and Welzel, P. (1998). Technology and Cost Efficiency in Banking: A Thick Frontier Analysis of the German Banking Industry. Journal of Productivity Analysis, vol. 10, 63-84.

278. Lang, G., and Welzel, P. (1999). Mergers Among German Cooperative Banks: A Panel-based Stochastic Frontier Analysis. Small Business Economics, vol. 13, 273-286.

279. Langetieg, T. (1978). An Application of Three-factor Performance Index to Measure Stockholder Gains form Merger. Journal of Financial Economics 6, no. 4 (December): 365-83.

280. Lanine, G. and Vander Vennet, R. (2007). Microeconomic Determinants of Acquisitions of Eastern European Banks by Western European Banks. Economics of Transition, 15, (2), pp. 285-308.

281. Lawrence, M.L. (2001). The key financial and non-financial variables that help explain commercial bank merger and acquisition premiums (in Pasiouras, F. Tanna, S. Zopounidis, C. 2005).

282. Lee, C. M. C., J. Myers, and B. Swaminathan (1999). What is the Intrinsic Value of the Dow? The Journal of Finance 54 (October): 1693-1741.

283. Leggio, K. B., and Lien D. (2000). Mergers in the Electric Utility Industry in a Deregulatory Environment. Journal of Regulatory Economics 2000, 17; 69-85.

284. Lensink, R., and Maslennikova I. (2008) Value Performance of European Bank Acquisitions, Applied Financial Economics, 18 (March 2008), 185-98.

285. Lepetit, L., Patry, S. and Rous, P. (2004). Diversification versus specialization: an event study of M&A's in the European banking industry. Applied Financial Economics, No. 14, pp. 663–669.

286. Levine, R. (1997). Financial development and economic growth: views and agenda. Journal of Economic Literature, Vol. XXXV, (June), pp. 688-726.

287. Levine R. and Zervos S. (1998). Stock markets, banks and economic growth. American Economic Review, 88, pp. 537–558.

288. Lewellen, W.G. (1971). A pure financial rationale for the conglomerate merger. Journal of Finance Vol.26, pp.527–537.

289. Linder, J. C. and D. B. Crane (1992). Bank mergers: Integration and profitability. Journal of Financial Services Research 7: 35-55.

290. Linn, S.C. and Switzer, J.A. (2001). Are cash acquisitions associated with better post-combination operating performance than stock acquisitions? Journal of Banking and Finance, 25, 1113–1138.

291. Lintner, J. (1965). The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets, Review of Economics and Statistics. Vol.47:1, pp. 13–37.

292. Llewellyn, D.T. (1999). The Economic Rationale for Financial Regulation. Financial Services Authority, London, Occasional Paper 1, April.

293. Loderer, C., and K. Martin (1990). Corporate Acquisitions by Listed Firms: The Experience of a Comprehensive Sample. Financial Management, 19, 17-33.

294. Lorenz, J.T., Beitel P., Schiereck D. (2006). Erfolgsdeterminanten aus Sicht der Käuferbanken bei großen europäischen Bankzusammenschlüssen. Finanzbetrieb 8(11):695–707.

295. Loughran, T. and Vijh, A.M. (1997). Do long term shareholders benefit from corporate acquisitions? Journal of Finance, 52, 1759–1790.

296. Loughran, T. and Ritter J. (2000). Uniformly least powerful tests of market efficiency. Journal of Financial Economics Vol. 55, pp.361-389.

297. Lowinski, F., Schiereck, D. and Thomas, T. W. (2004). The effects of cross-border acquisitions on shareholder wealth: evidence from Switzerland. Review of Quantitative Finance and Accounting, 22, 315-330.

298. Lyon, J. D., Barber, B. M. and Tsai, C. L. (1999). Improved Methods for Tests of Long-Run Abnormal Stock Returns. Journal of Finance, 54 (1), 165-201.

299. Ma, J., Pagan J., and Chu Y. (2009). Abnormal Returns to Mergers and Acquisitions in Ten Asian Stock Markets. International Journal of Business 14(3), 2009.

300. Ma, Q., Whidbee, D. A., & Zhang, A. W. (2011). Value, valuation, and the long-run performance of merged firms. Journal of Corporate Finance, 17(1), 1-17.

301. MacKinlay, A. C. (1997). Event Studies in Economics and Finance. Journal of Economic Literature Vol. XXXV, Issue 1 (March 1997).

302. Madura, J., and White A. (1990). Diversification Benefits of Direct Foreign Investment. Management International Review, Vol. 30, pp. 73-85.

303. Malatesta, P. H. (1983). The Wealth Effect of Merger Activity and the Objective Functions of Merging Firms. Journal of Financial Economics, 11, 155-182.

304. Mandelker, G. (1974). Risk and Return: The Case of Merging Firms. Journal of Financial Economics 1, no. 4 (December): 303-35.

305. Manne, H. (1965). Mergers and the market for corporate control. Journal of Political Economy 75, 1965, pp. 110-12.

306. Maquieira, C, W. Megginson, and L. Nail (1998). Wealth Creation Versus Wealth Redistributions in Pure Stock-For-Stock Mergers. Journal of Financial Economics 48, 3-33.

307. Markets in Financial Instruments Directive 2014/65/E (2014). Repealing Directive 2004/39/EC. Official Journal of the European Union, L 175, 30 June 2016.

308. Markides, C.C. and C.D. Ittner (1994). Shareholder Benefits from Corporate International Diversification: Evidence from U.S. International Acquisitions. Journal of International Business Studies, 25, 343-360.

309. Martin, K.J. (1996). The method of payment in corporate acquisitions, investment opportunities, and management ownership. Journal of Finance, 51: 1227–1246

310. Martynova, M., S., Oosting, and L., Renneboog (2006). The long-term operating performance of European mergers and acquisitions. In: Advances in Corporate Finance and Asset Pricing., L.Renneboog (ed.), Amsterdam: Elsevier.

311. Martynova, M. and Renneboog, L. (2008). Spillover of corporate governance standards in cross-border mergers and acquisition. Journal of Corporate Finance 14, 200-223.

312. Masulis, R., C. Wang, and F. Xie (2007). Corporate Governance and Acquirer Returns. Journal of Finance Vol. 62, pp.1851-1889.

313. McCann, M. (2001). Cross-border Acquisitions: The UK Experience. Applied Economics, 33, pp. 457-461.

314. McConnell, J.J, and T. J. Nantell (1985). Corporate combinations and common stock returns: The case of joint ventures. The Journal of Finance Vol.40, pp.519-536.

315. McKenzie, A.M., Thomsen M.R., Dixon B.L. (2004). The performance of event study approaches using daily commodity futures returns. Journal of Futures Markets 2004; 24; 533-555.

316. McKinnon, R.I. (1973). Money and Capital in Economic Development. Washington DC: The Brookings Institution.

317. McWilliams, A. and Siegel, D. (1997). Event studies in management research: Theoretical and empirical issues. Academy of Management Journal, Vol. 40, pp.626-657.

318. Meeks, G. (1977). Disappointing Marriage: A Study of the Gains from Merger. University of Cambridge, Department of Applied Economics, Occasional Paper No. 51. Cambridge: Cambridge University Press.

319. Meeusen, W., and J. van den Broeck (1977). Efficiency estimation from Cobb-Douglas production functions with composed error. International Economic Review 18, 435-444.

320. Melicher, R. W., Ledolter, J. and D'Antonio, L. J. (1983). A time series analysis of aggregate merger activity. Review of Economics and Statistics, Vol.65, pp.423– 430.

321. Mitchell, M.L. and Netter, J. (1989), Triggering the 1987 Stock Market Crash: Antitakeover Provisions in the Proposed House Ways and Means Tax Bill? Journal of Financial Economics, 24, 37-68.

322. Mitchell, M. L. and Lehn, K. (1990). Do bad bidders become good targets? Journal of Political Economy 98, 372-398.

323. Mitchell, M., Pulvino, T., Stafford, E. (2000). Price pressure around mergers. Journal of Finance 59, 31–63.

324. Moeller, S.B., Schlingemann, F.P., Stulz, R.M. (2004). Firm size and the gains from acquisitions. Journal of Financial Economics, Vol. 73, pp.201 – 228.

325. Moeller, S. B. and Schlingemann, F. P. (2005). Global diversification and bidder gains: A comparison between cross-border and domestic acquisitions. Journal of Banking and Finance, 29, pp. 533-564.

326. Moeller, S.B., Schinglemann F.P., Stulz R.M. (2005). Wealth destruction on a massive scale? A study of acquiring-firm returns in the recent merger wave. Journal of Finance 2005; 60; 757-782.

327. Molyneux, P. and Thornton, J. (1992). Determinants of European bank profitability: a note. Journal of Banking and Finance, Vol. 16, No. 6, pp. 1173–1178.

328. Moore, R. (1996). Banking's Merger Fervor: Survival Of the Fittest? Federal Reserve Bank of Dallas Financial Industry Studies, (December), pp. 9-15.

329. Moore, R.R. (1997). Bank Acquisition Determinants: Implications for Small Business Credit. Working paper, Federal Reserve Bank of Dallas.

330. Morck, R., Shleifer, A. and Vishny, R. (1990). Do managerial objectives drive bad acquisitions? Journal of Finance 45, 31–48.

331. Morck, R. and B. Yeung (1991). Why Investors Value Multinationality? Journal of Business, Vol. 64 No. 2, (April), pp. 165-187.

332. Morck, R. and Yeung, B. (1992). Internalization: An event study test. Journal of International Economics, Vol. 33, pp. 41-56.

333. Morellec, E., and A. Zhdanov (2005). The dynamics of mergers and acquisitions. Journal of Financial Economics 77, 649—672.

334. Mueller, D. C. (1989). Mergers: causes, effects, and policies. International Journal of Industrial Organization 7, 1-10.

335. Murthy, M., Rao U. (2009). Posterior Evaluation of Cross-Border Mergers & Acquisitions. Financial Review of Three Select Cases from Automobile, Energy & IT Sectors, 2009.

336. Mushidzhi, T.B. and Ward, M. (2004). Abnormal returns for cash vs. share funded acquisitions. Investment Analysts Journal, 60. 17-30.

337. Myers, S. C. and Majluf, N. S. (1984). Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have. Journal of Financial Economics, 13, 187-221.

338. Neely, W. P. (1987). Banking Acquisitions: Acquirer and Target Shareholder Returns. Financial Management, vol. 16, pp. 66–74.

339. Nellis, J.G., McCaffery, K.M. and Hutchinson, R.W. (2000). Strategic challenges for the European banking industry in the new millennium. International Journal of Bank Marketing, Vol. 18, No. 2, pp. 53-63.

340. Nelson, R. L. (1959). Merger Movements in American Industry, 1895 – 1956. Princeton: Princeton University Press.

341. Nelson, D. (1991). Conditional heteroskedasticity in asset returns: a new approach. Econometrica, 59, 347–370.

342. Neto, P., Brandao, A. and Cerqueira, A. (2010). The Macroeconomic Determinants of Cross-Border Mergers and Acquisitions and Greenfield Investments. Journal of Business Strategy, VII, 1&2, pp. 21-57.

343. Ng, S. A., Vaziri, M. T.and Bhuyan, R. (2010). Do Acquisitions Create Value? Evidence from the US and European Bank Acquisitions During Financial Crisis. Available at SSRN eLibrary.

344. Nisbet, P., Thomas, W. and Barrett, S. (2003). UK Direct Investment in the United States: A Mode of Entry Analysis. International Journal of the Economics of Business, 10 (3), pp. 245 – 259.

345. O'Keefe, J.P. (1996). Banking Industry Consolidation: Financial Attributes of Merging Banks, FDIC Banking Review 9 (1).

346. Ohlson, J. A. (1995). Earnings, Book Values, and Dividends in Security Valuation. Contemporary Accounting Research, 661-687.

347. Pablo, E. (2009). Determinants of Cross-border M&As in Latin America, Journal of Business Research, 62, pp. 861-867.

348. Palepu, K.G. (1986). Predicting takeover targets. Journal of Accounting and Economics 8, 3-35.

349. Park, N. K. (2004). A guide to using event study methods in multi-country settings. Strategic Management Journal, 25(7), 655-668.

350. Pasiouras, F., Tanna S. and Zopounidis C. (2005). Application of Quantitative Techniques for the Prediction of Bank Acquisition Targets. World Scientific Pub Co Inc., Singapore.

351. Pasiouras, F., and Gaganis C. (2006). Financial characteristics of banks involved in acquisitions: evidence from Asia, Applied Financial Economics (in press).

352. Pasiouras, F., Tanna S. and Gaganis C. (2007). What drives acquisitions in the EU banking industry? The role of bank regulation and supervision framework, bank specific and market specific factors. Coventry University, Economics, Finance and Accounting, Applied Research Working Paper Series, No. 2007-3.

353. Pasiouras, F. and Zopounidis, C. (2008). Consolidation in the Greek banking industry: which banks are acquired? Managerial Finance, 34 (3), 198-213.

354. Pastena, V. and W. Ruland (1986). The Merger/Bankruptcy Alternative. The Accounting Review, Vol. 61 (April), pp. 288-301.

355. Peat, M., Stevenson, M. (2008). Predicting Australian takeover targets: a logit analysis. The 6th INFINITI Conference on International Finance, Trinity College, Dublin.

356. Pecherot-Petit, B. S. (2000). La performance sur longue période des acquéreurs français. Banque & Marchés, Vol.46, pp. 31-39.

357. Peer, H. (1980). The Netherlands, 1962-1973. In: D.C. Mueller, (ed.), The Determinants and Effects of Mergers: An International Comparison, Cambridge, Mass.: Oelgeschlager, Gunn & Hain, pp. 163-91.

358. Perera, S., Gardiner S., Wickramanayake J. (2013). European mergers and acquisitions and the introduction of the Euro, forthcoming.

359. Peristiani, S. (1993). The Effect of Mergers on Bank Performance. Studies on Excess Capacity in the Financial Sector. Federal Reserve Bank of New York, pp. 90–120.

360. Peristiani, S. (1997). Do mergers improve the X-Efficiency and Scale Efficiency of US Banks? Evidence from the 1980s. J. Money, Credit and Banking. 29:3.

361. Phillips P.C.B. (2005). Econometric analysis of Fisher's equation. American Journal of Economics and Sociology, 64 (2005), pp. 125–168.

362. Pilloff, S. J. and Santomero A. M. (1996). The Value Effects of Bank Mergers and Acquisitions. Working Paper, University of Pennsylvania.

363. Pojezny, N. (2006). Value Creation in European Equity Carve-Outs. Germany, Deutscher Universitätsvlg Language (DUV).

364. Powell, R. (2001). Takeover prediction and portfolio performance: a note. Journal of Business Finance and Accounting, Vol. 28, pp.993-1011.

365. Pozzolo, F. and Focarelli, D. (2007). Cross-border M&A's in the financial sector. Is banking different from insurance? Bank of Italy Working Paper.

366. PwC Report (2013). Brave new world: New frontiers in banking M&A. PwC's The Journal series, January 2013.

367. Radomski, B. (2008). Fusionen deutscher Sparkassen - Eine Anwendung der Data Envelopment Analysis (DEA). Schriftreihe Finanzmanagement, 53, Verlag Dr. Kovač, Hamburg.

368. Rajan, R. and Zingales L. (1998). Financial dependence and growth. American Economic Review 88, 559–586.

369. Ramanathan, R. (2002). Introductory Econometrics with Applications. Harcourt College Publishers: 5th edition, Fort Worth.

370. Rau, P.R. and Vermaelen, T. (1998). Glamour, value and the post-acquisition performance. Journal of Financial Economics, 49, 223–253.

371. Ravenscraft, D. (1987). The 1980s merger wave: an industrial organization perspective. In: L. E. Browne and E. S. Rosengren (eds.), The Merger Boom, Federal Reserve Bank of Boston, Boston, MA, pp. 17-37.

372. Ravenscraft, D. and Scherer, F.M. (1987). Life after takeovers. Journal of Industrial Economics, 36, 147–156.

373. Resende, M. (2008). Mergers and Acquisitions Waves in the UK: A Markov-Switching Approach. Applied Financial Economics, 18, pp.1067-1074.

374. Resti, A. and Siciliano, G. (2001). Do Bank Acquisitions Increase Shareholders' Wealth? A Comparison between Market-Based and Accounting-Based

Performance Indicators for Some Italian Banks. Working Paper, Social Science Research Network.

375. Rezitis, A. (2008). Efficiency and productivity effects of bank mergers: evidence from the Greek banking industry. Economic Modeling, Vol. 25, No. 2, pp.236–254.

376. Rhoades, S.A. (1986). The operating performance of acquired firms in banking before and after acquisition. Staff Study Number 149. US Federal Reserve Board.

377. Rhoades, S.A. (1990). Billion Dollar Bank Acquisitions: a Note on the Performance Effects. Working Paper, Board of Governors of the Federal Reserve System, Washington, DC.

378. Rhoades, S.A. (1993). Efficiency effects of horizontal (in-market) bank mergers. Journal of Banking and Finance 17, 411–422.

379. Rhoades, S.A. (1998). The Efficiency Effects of Bank Mergers: An Overview of Case Studies of Nine Mergers. Journal of Banking and Finance 22, 273-91.

380. Rhodes-Kropf, M. and Viswanathan, S. (2004). Market Valuation and Merger Waves. Journal of Finance, Vol. 59, pp. 2685-2718.

381. Rhodes-Kropf, M., Robinson, D. T. and Viswanathan, S. (2005). Valuation Waves and Merger Activity: The Empirical Evidence. Journal of Financial Economics, Vol. 77, pp. 561-603.

382. Rime, B. and K. Stiroh (2003). The performance of universal banks: Evidence from Switzerland. Journal of Banking and Finance 27: 2121-50.

383. Ritter, J. (1991). The Long-Run Performance of Initial Public Offerings. Journal of Financial Economics 46: 3–27.

384. Rogers, K.E. (1998). Non-traditional activities and the efficiency of US commercial banks. Journal of Banking and Finance, 22, 467-482.

385. Roll, R. (1986). The hubris hypothesis of corporate takeovers. Journal of Business, 59, 197–216.

386. Rose, P. S. and Hudgins R. C. (2013). In: Bank management & financial services. 7th ed., Boston: McGraw-Hill/Irwin, 722 p.

387. Rosen, R. (2004). Betcha can't acquire just one: Merger programs and compensation. Federal Reserve Bank of Chicago Working Paper No. 2004-22.

388. Rossi, S. and Volpin, P. (2004). Cross-country Determinants of Mergers and Acquisitions. Journal of Financial Economics, 74: 277-304.

389. Ryden, B., and Edberg, J.O. (1980). Large mergers in Sweden, 1962–1976. In: Mueller, D.C. (ed.), The Determinants and Effects of Mergers: An International Comparison. Oelgeschlager, Gunn & Hain, Cambridge, MA, pp. 193–226.

390. Saccomanni F. (2011). Speech during the debate about European Crisis, Italian Crisis, Capalbio (GR). August 27.

391. Saqib, A.. De Bodt E. and Lobez F. (2013). Bank M&A Activities and Exposure to the Financial Crisis, Working paper.

392. Scherer, F.M. (1988). Corporate takeovers: the efficiency arguments. Journal of Economic Perspectives, Vol. 2, pp. 68-83.

393. Schiereck, D., Strauss M. (2000). Zum Ankündigungseffekt großer Bankfusionen. M&A Rev 11:421–425.

394. Schipper, K., and R. Thompson (1983). Evidence on the capitalized value of merger activity for acquiring firms. Journal of Financial Economics, 11, 1-4, p. 85-119.

395. Schmautzer, D. (2006). Cross-Border Bank Mergers: Who Gains and Why? University of Muenster, Working Paper.

396. Schnitzer, M. (1994). Hostile versus Friendly Takeovers. Economica, London, School of Economics and Political Science, vol. 63(249), pages 37-55.

397. Scholtens, B. and De Wit, R. (2004). Announcement effects of bank mergers in Europe and the US. Research in International Business and Finance, Vol. 18, pp.217±228.

398. Second Council Directive 89/646/EEC (1989). On the coordination of laws, regulations and administrative provisions relating to the taking up and pursuit of the business of credit institutions. Official Journal L 386 , 30/12/1989, p. 0001-0013.

399. Seidel, G.R. (1995). Kritische Efrolgsfaktoren bei Unternehmensubernahmen: Eine Analyse der US-Bankenbranche. Wiesbaden, Gabler.

400. Seth, A., Song, K.P. and Pettit, R. (2000). Synergy, Managerialism or Hubris? An Empirical Examination of Motives for Foreign Acquisitions of US Firms. Journal of International Business Studies, 31, 387-405.

401. Shaffer, S. (1993). Can megamergers improve bank efficiency. Journal of Banking and Finance, 17, pp. 423-436.

402. Sharpe, W.F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. The Journal of Finance 19, 425–442.

403. Shimizu, K., Hitt M.A., Vaidyanath D., Pisano V. (2004). Theoretical foundations of cross-border mergers and acquisitions: a review of current research and recommendations for the future. J Internat Manag; 10:307–53.

404. Shleifer, A. and Vishny R.W. (1989). Management Entrenchment: The Case of Manager-Specific Investments. Journal of Financial Economics 25(1): 123-139.

405. Shleifer, A. and Vishny R. (2003). Stock Market Driven Acquisitions. Journal of Financial Economics, Vol. 70(3), 1-29.

406. Siems, T. F. (1996). Bank mergers and shareholder wealth: Evidence from 1990s megamerger deals. Financial Industry Studies, Federal Reserve Bank of Dallas, Dallas: 1-12.

407. Simões, M.D., Van Aduard de Macedo-Soares, T.D.L., Klotzle, M.C. and Pinto, A.C.F. (2010). Do Mergers and Acquisitions Signal Value? Evidence from Argentina, Brazil and Chile. Encontro da Anpad, 36.

408. Singh, A. (1971). Takeovers: Their Relevance to the Stock Market and the Theory of the Firm. London: Cambridge University Press.

409. Singh, H. and C.A. Montgomery (1987). Corporate acquisition strategies and economic performance. Strategic Management Journal 8: 377-386.

410. Smit, C.J.B. (2005). The impact of large acquisitions on the share price and operating financial performance of acquiring companies listed on the JSE. MBA Thesis. Gordon Institute of Business Science, University of Pretoria.

411. Smit, C. J. B., and Ward, M.J.D. (2007). The impact of large acquisitions on the share price and operating financial performance of acquiring companies listed on the JSE. Investment Analysts Journal, Issue 65, 5-14.

412. Solibakke, P. B. (2002). Calculating abnormal returns in event studies: Controlling for non-synchronous trading and volatility clustering in thinly traded markets. Managerial Finance, 28(8), 66-86.

413. Soussa, F. and Wheeler, T. (2006). Do announcements of bank acquisitions in emerging markets create value? Working Paper, No. 315, Bank of England.

414. Spindt, P.A., and Tarhan, V. (1992). Are there synergies in bank mergers? Working paper, Tulane University, New Orleans, LA.

415. Staikouras, C. and G. Wood (2003). The determinants of bank profitability in Europe. Paper presented at the European Applied Business Research Conference.

416. Stanton, R.L. (1987). Accounting rates of return as measures of post-merger performance. Australian Journal of Business, 12, 293–394.

417. Starks, L., Wei, K. W. (2004). Cross-border mergers and differences in corporate governance. European Finance Association Meeting Proceeding.

418. Stegemoller, M. (2001). The Performance of frequent acquirers. In: Working paper, Banking and Finance department, Terry College of Business, The University of Georgia. Athens/Georgia.

419. Stevens, G.V.G. (1992). Exchange Rates and Foreign Direct Investment: A Note. International Finance Paper No. 444, Board of Governors of the Federal Reserve System, Washington, DC.

420. Stigler, G. J. (1964). A Theory of Oligopoly. Journal of Political Economy, 72, 44-61.

421. Stillman, R. (1983). Examining Antitrust Policy towards Horizontal Mergers. Journal of Financial Economics, 11, 1983, pp. 225-240.

422. Stulz, R. (1990). Managerial discretion and optimal financing policies, Journal of Financial Economics 26 (July): 3–27.

423. Sudarsanam, P.S. (1995). The Essence of Mergers and Acquisitions, Prentice Hall, London, ISBN 0-13-310889-9.

424. Sudarsanam, S., P. Holl and A. Salami (1996). Shareholder wealth gains in mergers: Effect of synergy and ownership structure. Journal of Business, Finance and Accounting 6, no. July: 673-98.

425. Sudarsanam, P. S. (2003). Creating Value from Mergers and Acquisitions. Pearson Education, Harlow, Essex.

426. Sudarsanam, S. and Mahate, A.A. (2003). Glamour acquirers, method of payment and post-acquisition performance: the UK evidence. Journal of Business Finance and Accounting, 30, 299–341.

427. Sudarsanam, S. (2006). Managerial overconfidence, risk incentives and acquisition performance. In: European Financial Management Association Annual Conference, Madrid.

428. Sudarsanam, S. and Mahate, A. (2006). Are friendly acquisitions too bad for shareholders and managers? Long-term value creation and top management turnover in hostile and friendly acquirers. British Journal of Management, vol. 17, no. S1, pp. 7-30.

429. Temming, M. (2014). Effect of pre-crisis capital on stock abnormal return at acquisition announcements - the case of the Western European banking sector during the 2008 crisis. University of Twente, Working Paper.

430. Tirole, J. (2005). The Theory of Corporate Finance. Princeton University Press.

431. Tolentino, P.E. (2010). Home country macroeconomic factors and outward FDI of China and India. Journal of International Management, 16, pp. 102 - 120.

432. Tourani-Rad, A. and Van Beek L. (1999). Market Valuation of European Bank Mergers. European Management Journal 17 (5): 532-540.

433. Toyne, M. and Tripp, J. (1998). Interstate Bank Mergers and Their Impact on Shareholder Returns: Evidence from the 1990s. Quarterly Journal of Business & Economics, 37, p. 48-58.

434. Travlos, N. G. (1987). Corporate takeover bids, methods of payment, and bidding firms' stock returns. Journal of Finance 42, 943-963.

435. Tsangarakis, N.V., Tsirigotakis H.K. and Tsiritakis E.D. (2013). Shareholders wealth effects and intra-industry signals from European financial institution consolidation announcements. Applied Financial Economics Vol. 23, Iss. 23, 2013.

436. Tuch, C. and O'Sullivan, N. (2007). The Impact of Acquisitions on Firm Performance: A Review of the Evidence. International Journal of Management Reviews, Vol. 9, Issue 2, pp. 141-170.

437. Uddin, M and Boateng, A. (2011). Explaining the Trends in cross-border mergers and acquisitions in the UK: An Analysis of Macro-economic Factors. International Business Review, Vol. 20, pp. 547-556.

438. Utton, M. A. (1974). On Measuring the Effects of Industrial Mergers. Scottish Journal of Political Economy, vol. 21, pp. 13-28.

439. Valkanov, E., and Kleimeier, S. (2007). The Role of Regulatory Capital in International Bank Mergers and Acquisitions. Research in International Business and Finance 21, 50-68.

440. Van Bekkum, S., Pennings, E. and Smit, H. (2011). Buy Smart, Time Smart: Are Takeovers Driven by Growth Options or Mispricing? Financial Management. Vol. 40, pp. 911-940.

441. Van Binsbergen, J. H., Graham, J. R., & Yang, J. (2010). The Cost of Debt. The Journal of Finance, 65(6), 2089–2136. Available from: http://dx.doi.org/

442. Van Lelyveld, I. and Knot, K. (2009). Do financial conglomerates create or destroy value? Evidence for the EU. Journal of Banking and Finance, 33, pp. 2312-2321.

443. Vander Vennet, R. (1996). The effect of mergers and acquisitions on the efficiency and profitability of EC credit institutions. Journal of Banking and Finance 20, pp. 1531-1558.

444. Vander Vennet, R. (1998). Cost and profit dynamics in financial conglomerates and universal banks in Europe. Paper presented at the SUERF/CFS Colloquium, Frankfurt, 15-17 October 1998.

445. Vander Vennet, R. (1999). Causes and consequences of EU bank takeovers. In: Eijffinger S., Koedijk K., Pagano, M and Portes, R., (eds.), The changing European financial landscape, London, CEPR, 45-61.

446. Vander Vennet R. (2002). Cross-border mergers in European banking and bank efficiency. Working paper, Universitaet Gent, 2002/152.

447. Vasconcellos, G. M., and R. J. Kish (1996). Factors Affecting Cross-border Mergers and Acquisitions: The Canada- U.S. Experience. Global Finance Journal, 7(2), 223-238.

448. Vasconcellos, G. M., and R.J. Kish (1998). Cross-border Mergers and Acquisitions: the European-US Experience. Journal of Multinational Financial Management, 8, 431-450.

449. Vickers, J. (2004). Merger policy in Europe: retrospect and prospect. European Competition Law Review, 25: 455–463.

450. Von Auer, L. (2003). Oekonometrie: Eine Einfuehrung. Springer Lehrbuch, 2. Auflage, Berlin.

451. Vos, E. and Kelleher, B. (2001). Mergers and takeovers: a memetics approach. Journal of Memetics – Evolutionary Models of information Transmission, Vol. 5 No. 2, pp. 10-23.

452. Walker, M. (2000). Corporate takeovers, strategic objectives, and acquiring-firm shareholder wealth. Financial Management 29: 53–66.

453. Wang, Z., Salin V., Hooker N.H., Leatham D. (2002). Stock market reaction to food recalls: a GARCH application. Applied Economics Letters 2002; 9; 979-987.

454. Wang, J. C. (2003). Merger-related cost savings in the production of bank services, Working Papers 03-8, Federal Reserve Bank of Boston.

455. Weese, A. (2007). Bankenzusammenschlüsse in Europa. Die Relevanz der Wahl der Akquisitionswährung als Erfolgsfaktor. Deutscher Universitätsverlag, Wiesbaden.

456. Weitbrecht, A. (2010). Mergers in an economic crisis – EU merger control 2008/2009. ECLR, Issue 7, Thomson Reuters Ltd.

457. Weston, J. (1953). The role of mergers in the growth of large firms. Berkeley: University of California Press.

458. Weston, J.F. and P.S. Jawien (1999). Perspectives on mergers and restructuring. Business Economics, 34, 29-33.

459. Weston, J.F., Johnson B.A., Siu J.A. (1999). Mergers and restructuring in the world oil industry. Journal of Energy Finance and Development; 4; 149-183.

460. Wheelock, D.C. and P.W. Wilson (2000). Why Do Banks Disappear? The Determinants of U.S. Bank Failures and Acquisitions. Review of Economics and Statistics 82(1) (February 2000), pp.127-138.

461. Wheelock, D.C. and Wilson P.W. (2004). Consolidation in US banking: Which banks engage in Mergers? Review of Financial Economics, 13, 7-39.

462. Worthington, A. and Higgs, H. (2004). Random Walks and Market Efficiencies in European Equity Markets. Global Journal of Finance and Economics 1, pp. 59-78.

463. Wutz, A. (2002). Wie beeinflusst das Umfeld einer Bank die Effizienz? Volkswirtschaftliche Diskussionsreihe, Universität Augsburg, Beitrag 215.

464. Xu, B., Deng Z., Xia B., Liu Q. (2003). Study on the Characteristics, Problems and Countermeasures of Chinese Enterprises Cross-border M&A Strategy. Working paper, Proceedings of the 15th Annual Conference of the Association for Chinese Economics Studies Australia (ACESA)

465. Zhang, H. (1995). Wealth effects of US bank takeovers. Applied Financial Economics, No. 5(5), pp. 329–336.

466. Zhang, H. (1998). US evidence on bank takeover motive: A note. Journal of Business, Finance and Accounting 25, no. (7) & (8): 1025-32.

467. Zollo, M. and Singh, H. (2004). Deliberate learning in corporate acquisitions: post-acquisition strategies and integration capability in US bank mergers, Strategic Management Journal, 25, 1233-1256.