

UNIVERSITY OF TWENTE.

**Determinants of domestic and cross-border bank
M&As in European countries**

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Preface

Starting from last year, I decided to do a study on important factors that can determine the target in a bank M&A deal. This master thesis is a part of my master program of Business Administration at the University of Twente. Thanks to the pre master and master Business Administration I followed, the knowledge I got can help me a lot of my work in the future.

First of all, I would like to thank my first supervisor Prof. dr. M.R. Kabir. His help and useful advice are really important to this master thesis. Also I want to thank my second supervisor Dr. Xiaohong Huang. The feedbacks she gave me are very helpful for improving my thesis. At last, I want to say thanks to my family and friends. I cannot finish my study without their support and love and especially for the help for the data source from Hu and Huan for this thesis.

Enschede, August 12, 2014

Luman Zhan

Abstract

Which bank characteristics make a target more attractive to the acquirer in the banking sector? This thesis answers this question by analyzing the determinants of bank acquisitions both within and across countries in EU countries over the period 2001-2010. The overall results indicate that, relative to banks that were involved in cross-border bank M&As, target were more profitable. The results suggest that banks with high profitability have a higher probability to be acquired by a foreign acquirer in a bank M&A. In particular, and contrary to what previous studies found, target bank size does not show a significant effect on the probability of being a target in both domestic and cross-border M&As.

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Determinants of domestic and cross-border bank M&As in European countries

1. Introduction

1.1 Background

Bank mergers and acquisitions (M&As) are playing important roles as corporate strategy actions that are vital for the banks in order to remain competitiveness and survive in this global world. The popularity of M&A actions is increasing in recent years. The reasons of this phenomenon are mainly about that the improvements of information technology and globalization in financial markets. These improvements make a popular trend in financial consolidation and especially for organizations such as economic cooperation and development (OECD) countries to be competitive. European Union (EU), which is a typical OECD, is able to provide a stage for financial consolidation, especially after the appearance of euro. Hernando et al. (2009) indicated that cross-border banking in Europe remained rather limited until the launching of the Euro. European banking sector has experienced significant change in structure and culture and these change incurred a lot of M&As in last 20 years. Thanks to the technological developments, the globalization of financial markets, the introduction of the euro and the creation of a single financial market in the EU, M&As play a more important role in banking sector (Asimakopoulos and Athanasoglou, 2013). With the help of euro and European commission, international banking in Europe also developed a lot. It is most likely that a single financial market is developing through cross-border banking to require the acquisition of banks across member boundaries with the EU (Hernando et al. 2009). What's more, this financial integration works as a financial intermediation with lower cost, results in higher economic growth and productivity (Hernando et al. 2009). Due to the regulatory and economic barriers of takeovers such as political interference and misuse of

supervisory powers, studies about the extent of cross-border takeovers showed that financial sector is proceeding more slowly (Hernando et al. 2009). The number of domestic bank mergers is always more when compared to the number of domestic bank mergers in last two decades. So domestic M&As have been widely accepted that they are more popular and larger than cross-border M&As.

1.2 Research question

Previous studies on bank M&As are mainly about performance or effects on shareholder wealth after the transaction, or find out the determinants of bank M&As. However, few studies show evidence whether acquiring foreign targets has a difference in determinants when compared to a domestic target. When conducting a bank M&A, some banks are attractive to acquirers while some are not. What desire is behind the acquirers and what factors lead a bank to be a target? Previous studies on determinants of bank M&As are mainly based on the sample which are taken from two or three decades ago, the findings may be out of date because global banking sector changed a lot in recent years. Besides, studies about wealth effects or determinants of being acquired haven't differentiated between domestic and cross-border M&As in their researches, that makes it ambiguous and unclear for potential acquirers who plan to conduct an M&A activity to decide which is better for them: going abroad or staying in their home country. As domestic M&As has led to a "domestic champions", rare studies compare domestic M&As to cross-border M&As. However, the rate of cross-border M&As is growing nowadays, it is necessary to analyze the determinants of domestic and cross-border M&As and differentiate the results. This thesis provides a review of the extant literature on the determinants of bank M&As and makes an examination regarding domestic and cross-border bank M&As to find out the determinants. The research question is what the determinants of

targets in domestic and cross-border bank M&As are in European countries. In other words, this thesis aims to examine if any bank specific characteristics can make the target more attractive to foreign or domestic acquirers. The sample is taken from banking sector that had a domestic or cross-border M&A during 2001 to 2010 in European countries. Period examined in this thesis is more recent than previous studies.

1.3 Contribution of the thesis

This thesis aims to find out the determinants of domestic and cross-border bank M&As and help potential acquirers who plan to conduct an M&A activity to decide which is better for them: acquire a foreign target or a target from the same country. As some studies also explored the factors that can determine M&As, this thesis also try to find out if the study which based on samples decades ago still works in nowadays situation. The findings of this thesis suggest which target characteristics should be paid attention to when considering a bank M&A. Rather than analyzing target, acquirer and country characteristics in previous studies, this thesis focuses on only target characteristics to find out what factors of target can make it attractive to acquirer in domestic and cross-border bank M&As.

1.4 Structure of the thesis

The rest of this thesis is organized as follow: Section 2 presents a brief literature review of empirical findings focus on M&As and forms a theoretical foundation on bank M&A with its determinations. Section 3 explains the methodology of this thesis with the overview of descriptive statistics. Analysis and results are presented in Section 4. Finally, Section 5 concludes with a summary of the main findings and a brief discussion for future research.

2. Overview literature on M&As

This chapter explains M&As and provides an overview of empirical findings of previous studies which specially focusing on bank M&As. Previous studies on M&A activity are mainly confined in UK and US, especially on cross-border M&A deals. Then determinants of bank M&As are provided based on empirical findings of previous studies. This thesis consults findings from literatures focusing both on EU and US.

2.1 What are M&As

M&As are investment made by decision makers with the help of basic principles of valuation apply, aims to generate a positive net present value for the shareholders. This strategy are mainly about buying, selling, dividing and combining of different companies and similar entities. Through these activities, M&As help companies create value and stay competitive. M&As do not only mean the economies combining of two firms, but also about the rights to run the company (Hillier et al. 2011). Two firms combine assets and operations to build a new legal entity so that they can share resources and achieve a same goal. M&As can add value, it happens when two companies are worth more together than being apart (Hillier et al. 2011). The acquiring firm is named as “bidder” or “acquirer” and the firm acquired is called “target”. Merger is the complete absorption of one firm by another, is a legal consolidation and combination of the assets and liabilities of two firms. When the M&A ends, the bidder remains its name and identity and acquires all the assets and liabilities of the target company. Whereas an acquisition is that one firm is taken over by another one and a new firm will completely establish after the integration (Hillier et al. 2011). In an acquisition a firm buys the assets and share of the target firm and transfers them to the acquirer in order to control and operate. The ownership of the

target firm no longer belongs to shareholders of the target but the acquired firm, the target becomes an affiliate or a subsidiary of the acquirer firm. Deal value or transaction value refer to how much the acquirer pays for the target with cash or stock (Hillier et al. 2011).

2.2 M&A types

M&A can be friendly or hostile M&A depending on the moods of the target. Types of M&As can be horizontal, vertical and conglomerate M&As (Gaughan, 2007). Horizontal M&A refers to the combination of two firms competing in a same market or industry. Vertical M&A means the combination of firms focus on different parts within a same value chain to expand supplier of raw materials or expand consumers (UNCTAD, 2000). Conglomerate M&As most occur among firms from different industry and market (UNCTAD, 2000).

A widely accepted classification of M&As type is domestic and cross-border M&As, which have gained in popularity over the last decade. Domestic M&As are integrations which acquirer and target firms are operating in a same country (UNCTAD, 2000). Domestic M&As may help to create targets which have sufficiently larger market share and may also help to increase market power in their home market to be attractive to acquirers in other countries. Cross-border M&As are the transactions which the target's nationality and the acquirer's nationality are different (UNCTAD, 2000). Although shareholders from target bank can benefit from both domestic and cross-border M&As, Asimakopoulos and Athanasoglou (2013) found in their study that cross-border M&As did not perform well in value creation. Evidence shown from Shimizu et al. (2004) that the majority of M&As involved firms within a same country, M&As that involved firms headquartered in two different countries still increased and took an over 40% of M&As in last two decades. The

number of cross-border M&As increases and shows a high value of transaction. Take UK as an example, which can be treated as a leading country in cross-border deals with a high value of acquisitions. By the year 2000 UK had the highest value over the other years and occupied 30% of the world's total value of cross-border acquisitions (Conn et al. 2005; UNCTAD, 2000).

2.3 Motives of M&As

Generally, the synergy, hubris and managerialism are main reasons for both domestic and cross-border M&As (UNCTAD, 2000). Hillier et al. (2011) introduced three motives related to synergy; one widely accepted is that a merger or acquisition may generate wealth better than working apart. Marketing gains, strategic benefits and market power can contribute to an increase (Hillier et al. 2011). Another motive is efficiency of operation after integration which can help to reduce the cost. The efficiency of operation can be achieved in many ways such as reducing the average cost of product and making better use of existing resources (Hillier et al. 2011). Lower taxes expense can also be a motive of M&As. Companies gain from tax in acquisitions. A firm with net operating losses may be a target for a firm with tax liabilities, because the tax bill could be lower after integration of two firms than considered separately (Hillier et al. 2011). The last motive for M&As is reducing needs in capital. Every company needs capital, integration of firms can help to manage assets and capital efficiently and reduce the expense of working capital (Hillier et al. 2011).

2.4 Potential problems of M&As

Although M&As act as strategies to generate wealth, these activities are still with uncertainty because of the difficulty in determining net present value of potential targets (Hillier et al. 2011). Potential problems in M&As such as operating can make

risk management, customer and internal control procedures more difficult. This may result in a higher cost of operating. Regulation and culture can be treated as problems for M&As as well (Asimakopoulos and Athanasoglou, 2013). The cost of operating may increase because of the differences in culture and regulations of acquirer and target countries. Barkema et al. (1996) found a problem of integrating cultures at a double level called “double-layered acculturation” and proved that differences between the firms and cultural distance between the countries can affect the integration.

2.5 Procedures of M&As

Hillier et al. (2011) explain three basic legal procedures used to acquire a firm, namely merger or consolidation, acquisition of shares, acquisition of assets. Merger is complete absorption of one firm by another, is a legal consolidation and combination of the assets and liabilities of two firms. Acquisition of shares is to purchase a firm’s voting shares with an exchange of cash, shares of equity, or other securities. A firm can also acquire another one by buying most or all of its assets, which is called as acquisition of assets.

The decision makers in bidder firm start with establishing a motive for the M&A and choose a target with the acquisition motive from the candidates to acquire. This screening process is complex because many factors about candidates’ situation need to be considered. What’s more, screening process is not only about identifying potential candidates, but also uncovering risks and valuing the target firm. A tender offer would be provided after the screening process when they decide to conduct a merger or acquisition. The acquiring firm should provide an overall price which they are able to pay for the target and state the offer price and give a deadline for the target firm to reply. The merger deal will be executed when the target firm accepts to the

tender offer and the conditions. Then the acquiring firm will decide the mode of payment that is pay for the target firm with cash or stock. The acquisition should be finished within six months since the announcement date of the transaction. At this time, the M&A transaction is closed (Hillier et al. 2011).

Transaction value of M&A refers to the total value of acquiring a firm which excludes fees and expenses paid by the acquirer. The value includes the amount paid for all common stock, common stock equivalents, preferred stock, debt, options and assets (Hillier et al. 2011). The acquisition should be finished within six months since the announcement date of the transaction. Acquisition value has differences when compared it to enterprise value. The enterprise value of a transaction is calculated by multiplying the number of target shares which are outstanding from the recent source that is available by the offer price (Hillier et al. 2011). By adding the cost to acquire convertible securities, plus short-term debt, straight debt, and preferred equity minus cash and market securities, final enterprise value will be got and state in millions.

2.6 Bank M&As

Bank M&As are two banks combining assets and operations to build a new legal entity in order to share resources and achieve a same goal. Bank M&As are strategies which can resume growth and reduce vulnerability and provide a method for banks to grow and enhance market competitiveness (Tichy, 2001). The acquiring bank is named as “bidder” or “acquirer” and the bank acquired is called “target” in a bank M&A deal. Merger is the complete absorption of one firm by another, is a legal consolidation and combination of the assets and liabilities of two firms. After a merger, the bidder bank remains its name and identity and acquires all the assets and liabilities of the target bank. Whereas an acquisition indicates the target bank is taken over by another one and a new bank will completely establish after the integration

(Hillier et al. 2011). In an acquisition a firm buys the assets and share of the target firm and transfers them to the acquirer in order to control and operate. Deal value or transaction value refer to how much the acquirer pays for the target with cash or stock (Hillier et al. 2011). Bank M&As have the same motives and potential problems with general M&As. A large size can help bank to enlarge the market gains and market power which acts as a defensive mechanism for banks wishing to withstand external pressures arising from other large banks that may want to expand through acquisitions (Asimakopoulos and Athanasoglou, 2013). Revenue efficiency can be achieved when the know-how transfer from the acquirer to the target bank that in most cases are similar in size and less sophisticated (Asimakopoulos and Athanasoglou, 2013). When bank M&As motives and the M&A type is linked. Cross-border bank M&As have some unique motives when compared with domestic bank M&As. Caiazza et al. (2012) indicated that cross-border deals are more likely to be influenced by motives than domestic deals. Shimizu et al. (2004) indicated the main motives of cross-border M&As from three perspectives: an entry mode for foreign market, dynamic learning process from a foreign culture and a value-creating strategy. In cross-border bank M&A the differences in regulatory system can have a significant impact on bank (Buch and Delong, 2004). Banks with good supervisory systems seems to be more competitive in market, while national supervisors try to discourage international deals since they fear increasing bank risk (Asimakopoulos and Athanasoglou, 2013). What's more, other significant risk factors which treated as a problem is the reputation risk, it is created when the acquired institution cause the reputation deterioration (Asimakopoulos and Athanasoglou, 2013).

With the introduction of euro and the creation of financial market, the number of cross-border bank M&As increased in EU (Asimakopoulos and Athanasoglou, 2013;

Hernando et al. 2009). What’s more, almost 34% of bank M&As involved banks from different countries from 2001 to 2010 (see Fig. 1). Conn et al. (2005) indicate an increase in number and value of international M&A deals in their study and proved cross-border M&As gained more importance and popularity around the world over the years (see Fig.1 & Fig. 2).

Numbers of bank M&As made by EU acquirers in years 2001 to 2010

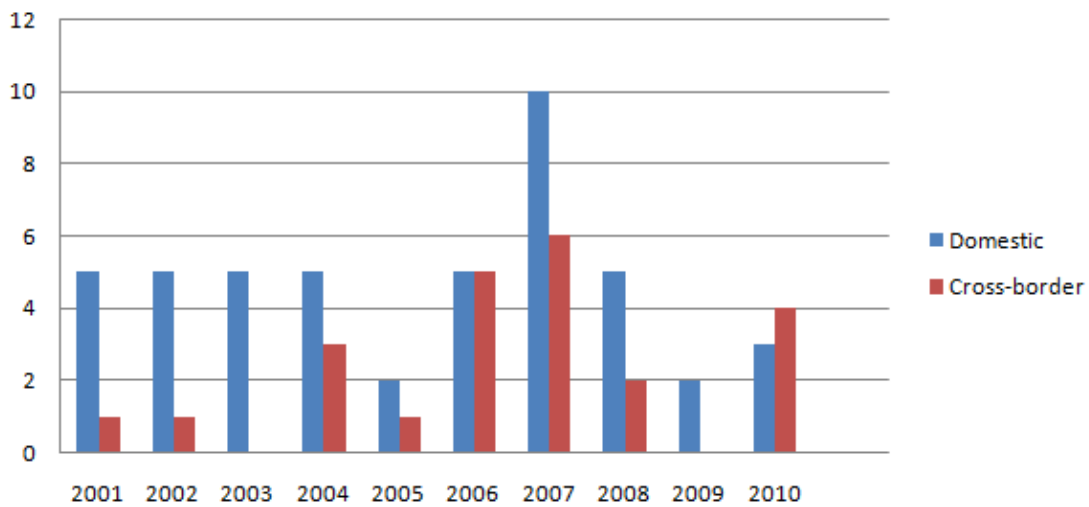


Fig. 1. Based on M&As data provided by Security Data Corporation (SDC) platinum from Thomson Financial

Transaction value of domestic and cross-border bank M&As in years 2001 to 2010

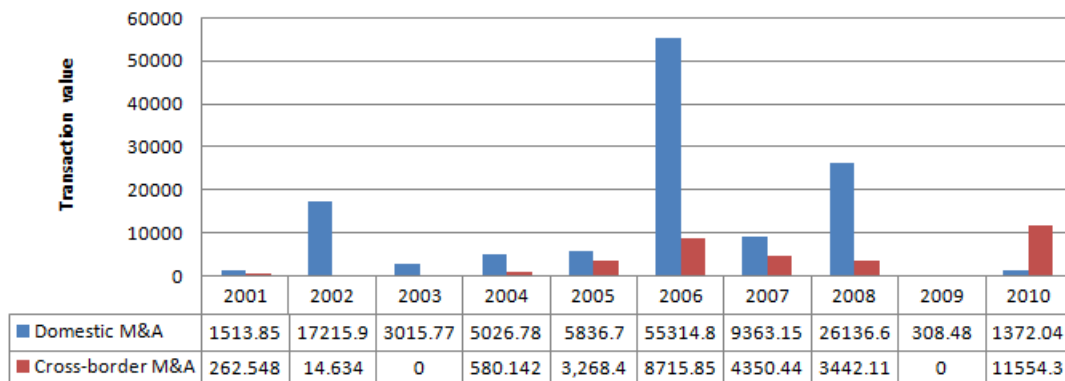


Fig. 2. Based on M&As data provided by Security Data Corporation (SDC) platinum from Thomson Financial

2.7 Determinants of acquisition in bank M&As

Banks have to deal with some special characteristics which can determine the occurrence of M&As. Previous studies have mentioned many determinants which can influence the occurrence of bank M&As. These determinants are mainly focusing on the characteristics of target, acquirer and the country where the takeover happens. Because US have a large number of the bank takeovers, previous studies are mainly based on US bank M&As. Some recent studies also focus on European countries. Lanine and Vander Venet (2007) examined the cross-border M&As to find out the determinants of bank M&As of targets in Central and Eastern European countries from 1995 to 2002 to. Akhigbe et al. (2004) indicated in their study by examining US samples that larger banks with low profitability, high capital degree, high core deposit ratio and high loan concentration are more likely to be targets. Study of Correa (2009) show that it is more popular to conduct cross-border M&As among large and poorly performing banks. Hannan and Pilloff (2009) also take US banks from 2001 to 2006 as sample to find out the determinants of bank M&As are profitability, size, inefficiency, market share and capital ratios. By examining 13 EU countries from 1995 to 2002 and using ROE as a partial indicator of bank performance, Lanine and Vander Venet (2007) indicate that banks with efficiency are more likely to be targets in bank M&As. Focarelli and Pozzolo (2008) find out distance, economic and cultural integration all play an important role in determining cross-border bank M&As. Buch and DeLong (2004) find in their study that regulation of target bank and informative costs do matter in cross-border M&As. By focusing on differences in laws and regulation across countries, Rossi and Volpin (2004) found a significantly positive relationship between better accounting standards and stronger shareholder protection and the volume of M&A activity. Targets that are from the countries with poorer

investor protection than their acquirer's country are more likely to be chosen in cross-border deals (Rossi and Volpin, 2004). This thesis focuses on the literature on the determinants of bank M&As with special attention to the results in Lanine and Vander Venet (2007) (2007), Hannan and Pilloff, (2009), Akhigbe et al. (2004), Buch and DeLong (2004) and Hernando et al. (2009). Different factors about bank specific characteristics found to be the most likely determinants of bank M&As are discussed in this chapter (see Appendix. 1).

2.7.1 Size

Small banks do not have a powerful competitiveness and are less likely to draw attention by the competitors. Small banks can also be easily integrated under the acquirer's operations (Hernando et al. 2009). These reasons help small banks to be more attractive to acquirers. Researchers also found a negative relationship between total assets and possibility of being acquired shows that smaller banks are more likely to be acquired (Goddare et al. 2009). Smaller banks are easily to be improved and foster by supervisor, so these banks are more likely to become targets (Goddare et al. 2009). However, if the acquirers want to win more powerful market or larger economies scale, a large bank may be a better choice than a small one. Large banks can provide source of economies and market sooner or with a lower cost. Previous studies have findings that larger banks are more likely to be acquired, while another finding shows that it costs too much to acquire a large bank and the integration during post-merger process is difficult (Hernando et al. 2009). There is also a significantly positive coefficient on total assets and possibility to be acquired which is a main finding of Lanine and Vander Venet (2007) that large banks are more likely to be acquired.

2.7.2 Profitability

It can be widely accepted that banks with poor performance may provide more opportunities to improve. Therefore the degree of target performance can indicate the likelihood of being acquired. Goddard et al. (2009) indicate in their study that lower profitability banks have a higher probability of being targets. However, there are many reasons for a bank to be underperformance, for instance having a high level of bad loans. This could be very risky for acquisition. Study from Hannan and Pilloff (2007) shows that less profitable banks are more likely to be acquired. Akhigbe et al. (2004) also indicate that banks with low profitability are more likely to be acquired. By analyzing global bank M&As Caiazza et al. (2012) give their finding that the target banks in cross-border bank M&As deal are on average much lower than the probability of being the target of a domestic M&A, which indicates that there is a difference in the impact on corporate activities between domestic and cross-border M&As.

2.7.3 Capitalization

Because it is likely to be harder to reorganize more leveraged banks (Caiazza et al. 2012), literatures examine capitalization of the target which can indicate the relative proportion of equity used to finance a company's assets to find out the probability of being acquired. Previous studies usually measure the target capitalization as the ratio of equity to total assets (Caiazza et al. 2012, Hernando et al. 2009). A highly capitalized target may be a good choice if the manager of acquirer bank is under the pressure to increase capitalization. A bank with high capitalization can also indicate the inability of a bank to diversify assets, which can help the bank to be attractive to the acquirers. What's more, a bank with high capital ratios may help to reduce the pressures to achieve high earnings because a high capital ratio can operate further

below the profit potentials. Both the studies of Lanine and Vander Vennet (2007) and Pasiouras et al. (2011) show a negative relationship with equity ratio and possibility to be a target. Caiazza et al. (2012) show a positive relationship of equity to total assets ratio in domestic deals by observing sample from G10 countries and give the finding that large and unprofitable banks with lower growth perspectives and lower regulatory power in operation are more likely to be targets in M&A deals. Akhigbe et al. (2004) indicate a positive relationship between the capital and the probability of being target by examining sample of publicly traded banks in US. Hernando et al (2009) also show significant positive results between equity to total assets ratio and the likelihood of being acquired in domestic M&A deals. However, another study shows that inefficiency reduces the probability of being acquired and finds a negative relationship between the equity ratio and being a target (Wheelock and Wilson, 2000).

2.7.4 Industry concentration

The degree of industry concentration can be a determinant to affect the likelihood of acquisition because of its impact on industry competition. A high concentration in target's market increases the banks attractiveness to both domestic and cross-border acquirers. The probability of being a target may decline in more concentrated markets because of opposition by the antitrust authorities in a domestic bank M&As. In the study of Pasiouras et al. (2007) showed a negative coefficient on the firm concentration ratio among bank M&A deals in European countries. However, in the study of Hannan and Pilloff (2007) there is no statistically significant evidence to prove that if competitions issues are a determinant of being a target in an M&A deal.

2.7.5 Prospects for future growth

Although a few literature do not take a growth variable into consideration, banks with good future growth can be very attractive to bidders. Because it means potential gains

can be get from improved management and better operation. A study of Cheng et al. (1989) found that the possibility of being a target is positively related to the growth rate of the assets of the target bank. On the other hand, Pasiouras et al. (2007) got a negative coefficient on the past growth rate with possibility of being a target in a M&A deal.

2.7.6 GDP

GDP is a measure of total size of the economy in a country. This matter can influence on cross border M&A better than domestic M&A. That is because although many foreign investors believe that in larger countries there could be more opportunities of business, the explicit and implicit barrier can also limit foreign entries in larger economies. An empirical finding indicates a negative relationship of GDP and M&As deals (Correa, 2009) and shows that cross-border M&As are more common for large and poorly performing banks which locate in small countries. There is also a negative relationship between GDP growth and possibility of being acquired with a empirical finding that banks operating in concentrated markets are more likely to be targets in cross-border deals (Hernando et al. 2009). On the other hand, Rossi and Volpin (2004) showed their empirical findings that total value of M&As is larger in countries with better accounting standards and stronger shareholder protection and showed a positive relationship with GDP growth with cross-border targets and gave a main finding in their study that total value of M&As is larger in countries with better accounting standards and stronger shareholder protection (Rossi and Volpin, 2004).

2.7.7 Culture and regulation

Focarelli and Pozzolo (2008) gave their main findings about that economic and culture integration is a key determinant of cross-border M&As in both banking and insurance sectors. Strength of legal rights indicates to which degree collateral and

bankruptcy laws protect the rights of borrowers and lenders (Stefano et al. 2012). It may make the lending relationship less risky when investors choose a target bank locates in a country where the legal rights are stronger (Rossi and Volpin, 2004). However, banks will also use direct lending as a substitute for arm's length financing, where the role of legal rights is even more important (Stefano et al. 2012). The strong legal rights can also reduce the risk of lending. Buch and DeLong (2004) showed result in their study that regulation and informative costs do matter in cross border M&As. A main finding of Pasiouras et al. (2011) indicated that a target with lower regulatory power is more likely to be chosen in M&As deal. Caiazza et al. (2012) proved it in their study which focus on worldwide bank M&A targets that banks operating in countries with stronger protection of legal rights are less likely to be targets in domestic deals, and one more finding for investors to target foreign banks in countries where it is easier to increase risk taking because regulation is less stringent.

2.8 Value creation of M&As

M&As in banking sector is treated as a strategy for a bank to create value. To find out whether the acquisitions can contribute to value creation or not, previous studies did researches on it based on the evidence from the world. By examining the stock price reaction of both target and acquirer banks to the announcement of M&A deals in European banking from 1990 to 2004, Asimakopoulos and Athanasoglou (2013) proved evidence of value creation in their study that target shareholders can benefit from bank M&As. They also indicated that target shareholders can earn positive abnormal returns in a bank M&A deal. For the acquirers' shareholders, especially those between banks with shares listed on the stock market, Asimakopoulos and Athanasoglou (2013) gave their findings that shareholders of acquirers which is listed on the stock market in a domestic M&A deal can benefit more compared to

cross-border acquirers who are unlisted. Another previous study which based on the evidence from Asia and Latin America between 1998 and 2009 also focused on shareholder value creation in bank M&As (Goddard et al, 2012). With the help of event study, they measured the change of shareholder value for acquirers and using a multivariate regression to identify the determinants of change in shareholder value for acquirers. Goddard et al, (2012) gave their empirical findings that on average, M&As do help target firms to create shareholder value. For the acquirer firms, they do not lose shareholder value and can benefit from the M&A deals when the target firm is underperforming.

Goddard et al, (2012) found out the geographical diversification is the factor that help acquirer firms to create shareholder value which means cross-border M&As can do better in shareholder value creation. Asimakopoulos and Athanasoglou (2013) also show the relationship between bank-specific characteristics with value creation that small, less efficient banks which generating more diversified incomes are more value creating.

3. Hypotheses, Methodology and Data

This chapter focuses on the hypothesis development first. Next, a description of variables used to test the hypotheses is given and follows research method. And then provides data which has been analyzed to answer the research question. Discussion of research method is based on the literature, explains how the data is analyzed to get an answer of the research question.

3.1 Hypotheses

Based on the previous studies, factors related to target characteristics such as bank size and profitability is treated as the most likely determinants of bank M&As. In this part the hypothesis related to the determinants of bank M&As are developed. Because of the limitation of data and information, not every determinant will be analyzed in this thesis. As the literature discussed above, there is no statistically significant evidence to prove that competition issues and industry concentration are determinants of being a target in an M&A. The data related to industry concentration is not available from the database. So industry concentration is excluded as variable in this thesis. This thesis attempts to identify observable characteristics that are related to a target bank to prove if these characteristics can influence domestic or cross-border bank M&As.

Size is treated as a determinant that may influence the occurrence of bank M&As in previous studies. Literature above discusses the empirical findings that size does have a relationship with bank M&As. However this relationship can be positive in Hernando et al. (2009) and Lanine and Vander Venet, (2007) and negative in Goddare et al. (2009). Because small banks can be easily integrated after the takeover, Hernando et al. (2009) indicate small banks are more attractive to both domestic and cross-border acquirers. Large banks can provide better source of economies and

market sooner or with a lower cost, Goddare et al. (2009) and Lanine and Vander Vennet (2007) prove that large and efficient banks are more likely to be acquired in cross-border bank M&As. In this study, hypothesis related size is formed as follow:

H1: A larger bank is more likely to be a target in cross-border bank M&A

Next determinant about target characteristics is the performance or profitability of target bank. It can be widely proved in previous studies that banks with poor performance may provide more opportunities to improve. Caiazza et al. (2012) give their finding that the target banks' probability in cross-border bank M&As deal are on average much lower than that of the target in a domestic M&A. Study from Hannan and Pilloff (2007) shows that less profitable banks are more likely to be acquired. Akhigbe et al. (2004) also indicate that large banks with low profitability, high capital levels, and high core deposit ratio are more likely to be acquired by a foreign acquirer. Overall, there could be a negative relationship between target bank's profitability and bank M&As based on previous studies. The hypothesis related to profitability in this thesis states that:

H2: A bank with a low profitability is more likely to be a target in cross-border bank M&As

The last target characteristic discussed in this thesis which may influence bank M&As is capitalization. Previous studies usually measure the target capitalization as the ratio of equity to total assets (Caiazza et al. 2012, Hernando et al. 2009). A highly capitalized target may be a good choice if the manager of acquirer bank is under the pressure to increase capitalization. A bank with high capitalization can also indicate the inability of a bank to diversify assets, which can help the bank to be attractive to the acquirers. Both the studies of Lanine and Vander Vennet (2007) and Pasiouras et al. (2011) show a negative relationship with equity ratio and possibility to be a target in a

bank M&A deal. Hagendorff et al. (2012) also indicate a negative sign with equity ratio of target and bank merger premium paid by bidder in their study. Caiazza et al. (2012) prove their finding in the study that borders have a relevant impact on corporate activities and show a positive relationship between equity ratio and cross-border M&As. Hypothesis related to equity ratio in this thesis argues that:

H3: There is a positive relationship between banks' capitalization and the likelihood of being a target in a cross-border bank M&A deal

3.2 Variables

In this part variables in the hypotheses need to be measured are illustrated. Variables are based on the empirical findings of the literature. The set of independent variables focuses on the characteristics of target. In this thesis the independent variables are size, profitability and capitalization of the target. These independent variables are tested for the relation with dependent variable.

3.2.1 Independent variables

Size is one of the target characteristics which treated as the first independent variable in this thesis. From the literature of Akhigbe et al. (2004), Correa (2009), Hernando et al. (2009) and Goddard et al. (2009), size is proved to influence the probability of being a target (see Appendix) in a M&A deal. Size of a firm can be measured by total sales, number of employees and total asset in previous studies. Based on the data, size of target is represented by the logarithm of target bank total assets as customary in the previous studies in this thesis. Target bank's total asset is the total amount of a bank's asset expressed in millions of US dollars twelve months before the M&A. Because fixed costs in corporate operations is relevant, especially in cross-border M&A deals, it is possible that target banks' total asset may be larger than average.

Another target characteristic which is the next independent variable is target

profitability or performance. The target bank's profitability is always measured by its return on equity or return on assets in previous studies. Return on equity (ROE) is the percentage represents how much net income returned of shareholders equity. It reveals the profitability of a firm in terms of how much profit a firm can generate with the investment from shareholders. Return on asset (ROA) explains how much earning can be generated from invested assets. It represents a firm's profitability which is relative to its total assets. Both ROE and ROA can be indicators of the performance of a firm, a higher ratio of ROE or ROA means a better profit with the firm's shareholder's equity or assets. But there is a difference between ROE and ROA which is debt. ROE and ROA can be equal if a firm has no debt. So the ROE would become higher than ROA if a firm decides to have a loan. Return on asset in this thesis is the ratio between net income and asset of target at twelve months before the M&A announcement data and return on equity is the ratio between net income and shareholders' equity of target at twelve month before the announcement date of M&A. Information shown in Appendix indicate that from the studies of Correa (2009), Hernando et al. (2009) and Goddard et al. (2009) give their conclusion that ROA has an impact on the likelihood of being a target in a bank M&A. And studies of Asimakopoulos and Athanasoglou (2013) and Pasiouras et al. (2011) use ROE to represent the profitability of the target bank and prove there is a relationship between ROE and the probability of being a target in domestic or cross-border bank M&A.

The last independent variable about target characteristic is capitalization of target. It indicates the relative proportion of equity used to finance a target bank's assets. Same as Caiazza et al. (2012) and Hernando et al. (2009) measure the variable in their studies, capitalization of the target is measured as the ratio of equity to total assets. Studies of Wheelock and Wilson (2000), Pasiouras et al. (2011) and Lanine and

Vander Venet (2007) all show a negative relationship between the ratio of equity to total assets and the likelihood of being a target in a bank M&A deal (see Appendix).

3.2.2 Dependent variables

The dependent variables in this thesis are the types of bank M&As. The measurement of dependent variables is same with that in study of Chen and Su (1997). It is defined to be 1 if the bank is a cross-border M&A target and 0 if the bank is a domestic M&A target. Based on the discussion above, Table 1 shows the definitions and calculations of variables.

3.2.3 Control variable

The control variable year is applied to check the influence of the year of announcement on dependent variable. So for every other year dummy variables are developed. The year of when a target had the M&A get a one and the others are zero.

Table 1: List of independent variables

Variable	Description	Calculation
Profitability:		
ROE	Return on Equity	Net income/Shareholder equity
ROA	Return on Total Assets	Net income/Total assets
Size	Size	Log (Total Assets)
Capitalization	Ratio of equity to total assets	Equity/Total assets
DumYear	Time effects	Announcement year 1, other years 0

Note: Total asset is defined as the total amount of banks asset expressed in millions of US dollars. Return on asset is the ratio between net income and total asset. Return on equity is the ratio between net income and shareholder's equity. Equity to assets is the ratio between equity and total asset. Capitalization is expressed as the ratio between equity and total assets.

3.3 Research method

Hypothesis are formed above to find out if the factors determine cross-border M&As also have an influence on domestic deals. The aim of this thesis is to examine how the

characteristics of a target bank and the country where the target bank operates relate to the likelihood of being a target. In this thesis a cross-sectional study is conducted as the research method. Cross-sectional studies usually aim to examine a causal relationship and estimate if there are associations between factors and outcome. As a phenomenon usually depends on several factors, a common approach of cross-sectional research is to perform a regression analysis with a binary logistic model. The choice of research method is based on the methodology of previous studies and data availability. A logistic model is used in this cross-sectional study. In the previous studies of Hernando et al. (2009), Caiazza et al. (2012), Chen and Su (1997) and Lanine and Vander Vennet (2007), multinomial regression models are applied to find out the relationship between different factors and the possibility of being a target (see Appendix). Similarly to the studies of Chen and Su (1997), Hernando et al. (2009) and Lanine and Vander Vennet (2007) which applies a limited dependent variables technique (see Appendix). The dependent variables in the model is a binary value that takes the value one for banks are targets in cross-border M&As and zero for banks that are targets in a domestic M&As.

In order to find out the relationship among characters of target and the likelihood of being a target in domestic or cross-border M&As, t-statistic is used firstly to test the significance of different characteristics between targets in domestic and cross-border bank M&As. The null hypothesis states that the mean spreads of each variable related to target characteristics between the targets of domestic and cross-border bank M&As are equal to zero. Then a binary logistic model based on the model applied by Chen and Su (1997) that distinguishes between (i) targets in domestic bank M&As and (ii) targets in cross-border bank M&As.

The models of discriminating between domestic and international targets are as

follow:

$$P_{it} = \alpha + \beta_1(\text{Size}_{it-1}) + \beta_2(\text{Profitability}_{it-1}) + \beta_3(\text{Capitalization}_{it-1}) \\ + \beta_t(\text{DumYear}) + \varepsilon_{it}$$

Where P_{it} is the probability that a target bank i being acquired in a domestic or cross-border M&A at time t . Then dependent variable is defined to be 1 which indicates a target in a cross-border M&A deal and defined to be 0 that the target is in a domestic M&A deal. A set of independent variables represent the characteristics of target bank, depends on differences from year. The choice of bank specific characteristics to be analyzed in this model is based on the empirical findings of previous study and data availability. In this empirical model, size of the target bank is measured by to total assets. There are two proxies for the target's profitability. The first is return on total assets, with higher values indicating better profitability. The other proxy is return on equity which can indicate better profitability with a higher value. The capitalization of target is measured as the ratio of equity to total assets. The control variable year is applied to check the influence of the year of announcement on dependent variable. So for every other year dummy variables are developed. The year of when a target had the M&A get a one and the others are zero.

3.4 Data

In order to find out determinants of domestic and cross-border bank M&As from target characteristics. The construction of sample of M&A transactions is obtained from the Thomson Financial M&A Database. The research is restricted from 2001 to 2010 and all the M&A deals have to be completed by the end 2010. The record of sample should include the necessary information such as country of residence of the acquirer and the target, the deal closed year, the acquirer and target industry sectors. In this sample, both the target and the acquirer are independent commercial banks or

bank holding companies at the time of M&A. This enables the effect assessment of consolidations in banking industry. Domestic bank M&A is defined as when acquirer and target are both from banking sector and have a same nationality. Cross-border bank M&As are that acquirer and target are both from banking sector but the nationalities are different. In the other words, the ultimate parent bank of the bidder institution has a different nationality with that of target bank. Target and acquirer banks are both resident in European countries. The sample contains 69 bank M&As at last and includes 48 domestic bank M&As and 21 cross-border M&As. In the M&A sample, the target are from 18 European countries including Italy, Portugal, France, Austria, Bulgaria, Cyprus, Denmark, Germany, Greece, Iceland, Norway, Poland, Sweden, Switzerland, Turkey and United Kingdom over the period from 2001 to 2010.

3.5 Descriptive statistics

As it identified above, domestic bank M&A is when acquirer and target are both from banking sector and have a same nationality. Cross-border bank M&As are that acquirer and target are both from banking sector but the nationalities are different. The sample contains 69 bank M&As at last and includes 48 domestic bank M&As and 21 cross-border M&As over the period 2001 to 2010. The M&A sample is split into domestic M&As where the countries of acquirer and target are same and split into cross-border M&As where they are different. Table 2 shows the summary statistics of target which involved in both domestic and cross-border bank M&A deals. From Table 3 the correlation between the variables can be got. The Pearson correlation coefficient is used to test the correlation between the variables. It provides a measurement of the strength and direction of the linear relationship between variables. The correlations between the variables are shown in Table 3 and indicate how the

variables move from each other.

Table 2: Summary statistics of banks that were acquired: domestic versus cross-border deals

	Mean	Median	Minimum	Maximum
A. Banks acquired (N= 69)				
Total assets (\$mil)	103162.074	17378.900	118.5	1324623.0
ROA	0.984%	0.737%	0.039%	7.6718%
ROE	12.225%	10.721%	0.627%	35.451%
Equity to total assets ratio	19.027%	11.879%	0.563%	175.413%
B. Bank acquired in domestic deals (N=48)				
Total assets (\$mil)	117650.956	18582.900	118.5	1324623.0
ROA	0.774%	0.737%	0.038%	2.156%
ROE	11.074%	10.3577%	0.627%	23.028%
Equity to total assets ratio	17.365%	10.871%	0.563%	175.413%
C. Bank acquired in cross-border deals (N=21)				
Total assets(\$mil)	68388.755	11794.800	630.1	484635.3
ROA	1.490%	0.880%	0.349%	7.617%
ROE	14.987%	11.354%	6.805%	35.451%
Equity to total assets ratio	23,015%	17.019%	1.605%	104.125%

Note: Variables are defined in Table 1. Total asset is expressed in millions of US dollars. Return on equity is the ratio between net income and shareholder's equity. Equity to assets is the ratio between equity and total asset. Capitalization is expressed as the ratio between equity and total assets.

Based on the summary statistics shown in Table 2, comparison can be made with previous studies which focus on the same sectors. Variables in this sample are higher than those from other studies. For instance, total assets and equity to total assets ratio of banks acquired in the sample are much higher than those in studies of Hernando et al. (2009) and Caiazza et al. (2012). Hernando et al. (2009) examined banks in EU-25 countries over the period 1997-2004 and the mean value of total assets are 22600 and 16800 in domestic and cross-border samples. Dataset of Caiazza et al. (2012) is

comprised of 24325 banks involved in an M&A deal in 154 countries between 1988 and 2006. The means of target bank's total assets involved in domestic and cross-border M&As are 5062.94 and 4540.78. The reasons of these differences may be due to the differences in countries and time periods.

Table 3: Correlation between variables

	Total assets	ROA	ROE	Equity/total assets
Total assets	1			
ROA (%)	-0.120	1		
ROE (%)	-0.020	0.719***	1	
Equity/total assets	-0.184*	0.504***	0.304**	1

Note: Definition of variables is provided in Table 2. This table provides the correlation between the variables. High correlated variables are checked for heteroscedasticity. N=69. The symbol * indicates that the correlation is significant at the 10% level. Symbol ** means that the correlation is significant at the 5% level. And symbol *** means that the correlation is significant at 1% level.

Dietz & Kalof (2009) state that there may exist a multicollinearity if the correlation between variables is higher than 0.40. Based on the results of Table 3, ROA shows significant correlation with ROE and equity ratio both at 1% level, which are higher than 0.40. Although the correlation are lower than 0.40 of equity ratio with other variables, it still shows significant correlation with size and ROE at 10% and 5% level.

4. Empirical results and discussion

In this section Table 4 shows the necessary information on the sample about the means of the variables and the t-statistics of the mean equality of each variable between foreign takeover targets and domestic takeover target one year prior to the announcement data of the takeovers. The results of logistic regression analysis are displayed in Table 5 which estimating the probability of being acquired in bank M&A deals in the EU countries. In Table 5 the likelihood ratio statistics from using logistic model is shown.

Table 4: Means of variables and t-statistics for tests of equality of means of variables

	Cross-border	Domestic	t-stat.
	Mean	Mean	
Size (log)	9.57	10.09	-1.015
ROA (%)	1.49	0.77	1.887*
ROE (%)	14.99	11.07	2.251**
Equity/total assets (%)	23.02	17.37	0.855

Note: Definition of variables is shown in Table 2. The statistics correspond to one year before the M&A. The symbol * indicates that the correlation is significant at the 10% level and symbol ** means that the correlation is significant is significant at the 5% level.

The Table 4 provides the sample means of the variables and t-statistics of the mean equality of each variable between domestic and cross-border M&As at one year time before the announcement data of the acquisition. The value of t-statistics shows the significant difference of means between domestic and cross-border targets characteristics such as profitability which are represented by ROA and ROE. Based on the Table 4, ROA is significant at 10% level and ROE is significant at 5% level for one year time before the announcement data of the acquisition. Evidence in the table

indicates that ROA and ROE of domestic targets are significantly lower than that of cross-border targets. And the ratio of equity and total assets of domestic targets are relatively lower than the ratio of cross-border targets.

Table 5 displays results of estimation from logit model which allows for different effects of the independent variables on the likelihood of being a target bank in the same country and also on the likelihood of being a target bank in a cross-border bank M&A deal within 18 EU countries from 2001 to 2010. Based on the results of column [1], the likelihood ratio statistics (64.651) is high to reject the null hypothesis that all the parameters in the model are simultaneously equal to zero. Correct classification 95.8% of a target being a domestic target rather than a cross-border target at one year before the announcement date respectively. The correct classification for cross-border a target is 31.6%, which is much lower than that of domestic. This may because the sample of cross-border targets is much lower than that of domestic targets. The overall percentage of the correct classification is still high at 75.6%. In sum, this can suggest the prediction ability of the model is still better than random selection.

Result of column [1] in Table 5 does not show any significant relationship between all the independent variables and the dependent variable. So no hypothesis is accepted now. This may because of the high correlation among variables as there may be multicollinearity. So columns [2], [3] and [4] of Table 5 present the results of logit model which excludes the variables ROA, ROE or equity ratio which may be multicollinearity according to Table 3.

Table 5 Logistic analysis (Cross-border targets versus Domestic targets)

Variable	[1]	[2]	[3]	[4]
	Estimate	Estimate	Estimate	Estimate
Size:				
Total assets	-0.296 (0.229)	-0.295 (0.220)	-0.359 (0.222)	-0.209 (0.203)
Profitability:				
ROA (%)	0.746 (0.840)	1.169** (0.556)		0.631 (0.731)
ROE (%)	0.049 (0.085)		0.109** (0.052)	0.037 (0.078)
Capitalization:				
Equity/total assets	-0.21 (0.025)	-0.022 (0.023)	-0.012 (0.014)	
DumYear	Yes	Yes	Yes	Yes
Likelihood Ratio Statistic	64.651	66.231	67.762	67.718
Correct Classification:				
Domestic target	95.8%	93.8%	89.6%	97.9%
Cross-border target	31.6%	35%	30%	30%
Overall percentage	75.6%	76.5%	72.1%	77.9%

Note: Definition of variables is shown in Table 2. Total asset is defined as the total amount of banks asset expressed in millions of US dollars. Return on asset is the ratio between net income and total asset. Return on equity is the ratio between net income and shareholder's equity. Equity to assets is the ratio between equity and total asset. The symbol * and ** denotes significance at the 10% level and 5% level. DumYear is the dummy variables for the year. Data are from Thomson Financial M&A Database.

Table 6 Logistic analysis (Cross-border targets versus Domestic targets)

Variable	[1]	[2]	[3]	[4]
	Estimate	Estimate	Estimate	Estimate
Size:				
Total assets	-0.138 (0.170)	-0.129 (0.165)	-0.179 (0.166)	-0.101 (0.161)
Profitability:				
ROA (%)	0.975 (0.695)	1.076** (0.487)		0.821 (0.629)
ROE (%)	0.014 (0.070)		0.095** (0.046)	0.017 (0.069)
Capitalization:				
Equity/total assets	-0.12 (0.020)	-0.013 (0.020)	-0.004 (0.012)	
DumYear	No	No	No	No
Likelihood Ratio Statistic	73.923	73.962	76.420	74.485
Correct Classification:				
Domestic target	93.8%	93.8%	97.9%	97.9%
Cross-border target	25 %	20%	15%	20%

Overall percentage	73.5%	72.1%	73.5%	75%
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Note: Definition of variables is shown in Table 2. Total asset is defined as the total amount of banks asset expressed in millions of US dollars. Return on asset is the ratio between net income and total asset. Return on equity is the ratio between net income and shareholder's equity. Equity to assets is the ratio between equity and total asset. The symbol * and ** denotes significance at the 10% level and 5% level. DumYear is the dummy variables for the year. Data are from Thomson Financial M&A Database.

The 4 columns in Table 5 all show a high likelihood ratio statistics which is more than 64 to reject the null hypothesis that all the parameters in the model are simultaneously equal to zero. Correct classifications of a target being a domestic target rather than a cross-border target at one year before the announcement date respectively. The correct classification for cross-border targets is much lower than that of domestic. This may be because the sample of cross-border targets is much lower than that of domestic targets. The overall percentages of the correct classifications of 4 columns are all high above 73%. In sum, this can suggest that the prediction ability of the model is still better than random selection.

Columns [2] in Table 5 shows the empirical results of logit analysis of domestic versus cross-border targets one year ago to the announcement data, which exclude ROE and only take ROA to find out the relationship between profitability and bank M&As. Using the logit model, result shows a significant relationship between the ROA and bank M&As at 5% level, which indicate that a bank with a high profitability is more likely to be a target in cross-border bank M&As. Based on this results, the second hypothesis of this thesis is rejected and indicate that a bank with a high profitability is more likely to be a target in cross-border bank M&As.

Columns [3] in Table 5 exclude ROA to find out the determinants of bank M&As and only take ROE as the representative variable for profitability of a target bank. It shows the empirical results of logit analysis of domestic versus cross-border targets one year ago to the announcement data. Using the logit model, result shows a significant relationship between the ROE and bank M&As at 10% level, which also reject the second result and indicate that a bank with a high profitability is more likely to be a target in cross-border bank M&As.

In column [4] of Table 5, another variable equity ratio which may be multicollinearity

is excluded to find out the determinants of bank M&As and keep both ROA and ROE as the representative variables of profitability of a target bank. Using the logit model, it shows no significant relationship between the independent variables and the dependent variable. So no hypothesis is accepted. Results in Table 6 by using the same logit model without the dummy variable of year, which shows the same results with Table 5 and indicate that the announcement data of the M&As do not have any influence on the dependent variables. The result suggest that cross-border acquirers in EU countries focus more on the profitability of targets and prefer to takeover targets which have a high profitability.

5. Conclusion

As relatively little studies has focused on determinants of bank M&As in both domestic and cross-border bank M&A deals with in EU countries. This thesis aims to compare the target banks which acquired by domestic or cross-border acquirers by comparing the characteristics of target from 18 EU countries from 2001 to 2010. Determinants from recent literatures which focus on target characteristics are selected to be independent variables. First, means of the variables of sample and t-statistics of the mean equality of each variable between domestic and cross-border targets are analyzed, which allow identifying that if there are significant differences of means between domestic and cross-border target characteristics. And then a logit binary model with likelihood ratio statistics and correct classification to find out the relationship between target characteristics and bank M&As.

5.1 Summary of main results

Based on the empirical results in logit model, there are significant differences between domestic and cross-border targets in profitability which are ROE and ROA in this thesis. ROA are significant at 10% level and ROE are significant at 5% level. What's more, the profitability of targets in cross border M&As are significant higher than those of domestic M&A deals. The result can indicate that cross-border acquirers focus more on profitability of a target. This logit binary model results suggest that the estimated model predicts domestic M&As better than random selection as the correctly classification percentage of one year time before the announcement date is 95.8%. The empirical results indicate significant positive relationship between profitability of target and cross-border bank M&As, and do not show any relationship of size and capitalization in EU countries. The finding of this thesis is similar with the result of Hernando et al.(2008), and opposite with the results of Correa (2009). More

precisely, the main findings of this thesis are as follows:

From the results of the t-test of variables means and logit model can be concluded that profitability of target is the factors in determining the bank M&As in EU countries. The variables of ROE and ROA can both indicate this relationship and ROE shows a more important influence in t-test of variables means model while ROA shows a more important influence in logit model. This difference may because of there are significant correlations between ROE and ROA, when take equity ratio into consideration together, the results can be influenced. Overall, profitability shows an important positive factor in determining the bank M&As in both models. There are no significant relationship of target size and capitalization with bank M&As as other studies. To conclude, for EU countries they prefer better performing banks to be targets in cross-border bank M&As. Based on the hypotheses and results, it can be proved that the hypothesis 2 is rejected that low profitability bank is more likely to be a target in cross-border bank M&As. Hypotheses 1 and 3 are not accepted due to no significant relation between bank size and capitalization and bank M&As.

Compare the results with other previous studies, contrary to what previous studies found, target bank size and capitalization do not show significant effect on the probability of being a target in both domestic and cross-border M&As. In this thesis, only one bank specific variable shows an influence on the probability of a target to be acquired in cross-border M&As that is profitability, which is measured with ROE and ROA.

5.2 Limitations

The contribution of this thesis focuses on helping potential acquirers who plan to conduct an M&A activity to decide which is better for them: acquire a foreign target or a target from the same country and try to find out if the studies based on samples

decades ago still works at nowadays situation in EU countries. In the research, samples are taken from both domestic and cross-border bank M&A deals from 2001 to 2010 in 18 EU countries, due to the limitation of specific sector and countries, the sample is small, especially the number of cross-border deals. This limitation results in a low correct classification for cross-border targets in logit model. What's more, all the sample are from bank M&A deals in last decade, which exclude and ignore the banks who did not have an acquisition during the same period. This makes it impossible to analysis banks which are target and non-target and makes it obscure to find out which factors of target determining the occurrence of bank M&As.

5.3 Suggestions for future research

According to the research and its limitations, a better future research can examine a larger sample and take more characteristics as influence into consideration. The data of the study can contain all banks and grouping them into target and non-target, and can also grouping the target sample into domestic targets and cross-border targets. The comparison can be applied to find out the determinants of each group. Another suggestion is consider more factors which may influence bank M&As as other previous researches. As the most important difference between domestic bank M&A and cross-border bank M&A is the different nationalities of target and acquirer. To include the country characteristics as independent variables as well in a research to find out if the characteristics of countries can make it different when considering a bank M&A.

Appendix 1

Summary literature on factors to domestic and cross-border bank M&As

Authors	Study period	Country	Relevant explanatory variables with signs	Main findings	Methodology
Akhigbe et al. (2004)	1987-2001	US	total asset (+); ROA (-); capital (+); core dep./tot.asset (+); real estate loans/tot.assets (+)	A bank will have a higher probability of being a target if it is larger and with lower profitability.	Logit model
Correa (2009)	1994-2003	71 countries	total asset (+); gdp (-); ROA (-); gdp per capita (-); private credit/gdp (-);	Cross-border M&As prefer large and poorly performing banks which locate in small countries to be targets	Probit regression model
Goddard et al. (2009)	2001-2006	US	total asset (-); ROA (-); liquidity (+); capital/asset (-); loans/tot. asset (-)	Smaller, lower profitability and more liquid banks have a higher probability of being targets	Cox (1972) proportional hazard duration model
Hannan and Pilloff (2009)	1996-2005	US	ROA (-); inefficiency (+); capital/tot. asset (-); total asset (+);	Determinants of bank M&As are profitability, size, inefficiency, market share and capital ratios	Cox (1972) proportional hazard duration model
Hernando et al. (2009)	1997-2004	25 EU countries	total asset (-); gdp growth (-); cost/income (+); country specific gdp growth (+)	Inefficient and larger banks are more likely to be acquired by other banks in the same country, banks operating in more concentrated markets are more likely to be acquired by banks in other countries	Multinomial logit model
Lanine and Vander Vennet (2007)	1995-2002	13 EU countries	total asset (b) (+); tot. equity/tot.asset (b) (-); total asset	There is a high probability for large and efficient banks to be targets in	Multinomial logit model

Pasiouras et al. (2011)	1997-2002	EMU countries	(+); loans/tot. asset (-); gdp per capita growth (-); equity/tot.asset (-); ROE_target (-); cost/income (+); total asset (+); supervisory power (-);liquidity (b) (-); bank claims on the priv.sec./gdp (-)	bank M&As It is more likely for large and unprofitable banks which have lower growth perspectives and operating in markets with lower regulatory power to be targets in M&As	Weighted multinomial logit model
Caiazza et al. (2012)	1992-2006	154 countries	gdp (+); strength of legal rights (+); risk regulation (+); tot assets (+); cost/income (+); equity ratio (+);	The main difference between domestic and international M&As determinants are the characteristics of the countries where the banks operate	Binomial probit model and multinomial probit model
Asimakopoulos and Athanasoglou (2013)	1990-2004	15 EU countries	target (+); ROE (+); size (+); liquidity (-);	Smaller, less efficient and generating more diversified domestic target banks perform better in value creating after M&A	Event study
Wheelock and Wilson (2000)	1984-1993	US	tot.loans/tot.asset (+); equity ratio (-); liquidity/tot.asset (+); total asset (+)	Inefficiency has a negative influence on the probability of being acquired in a bank M&A deal	Multinomial logit model

(b) Indicates the variable is referred to the bidder bank, otherwise it is referred to the target bank

Appendix 2

List of data analyzed in this thesis

	M&A type	Announcement date	Target name	Target nation	Acquirer nation	Equity value (\$mil) LTM	Net income LTM (\$mil)	Target total assets LTM (\$mil)	Target net assets LTM (\$mil)
1	Domestic	09.03.01	Banca Nazionale del Lavoro SpA	Italy	Italy	9543.836	447.4	85238.7	3706
2	Cross-border	11.04.01	Midtbank A/S	Denmark	Sweden	260.28	12.6	1214.7	101.6
3	Domestic	08.05.01	Banco di Napoli SpA	Italy	Italy	2550.935	131.6	35212.7	1317.4
4	Domestic	22.05.01	Banque Transatlantique(CIC)	France	France	130.002	6.3	855.1	72.7
5	Domestic	05.06.01	Powszechny Bank Kredytowy SA	Poland	Poland	791.284	75.4	6075	599.6
6	Domestic	21.12.01	Bipop-Carire	Italy	Italy	6295.239	316.5	14676.3	1374.4
7	Domestic	18.02.02	Egnsbank Fyn	Denmark	Denmark	57.477	1	118.5	17.4
8	Cross-border	27.09.02	Amagerbanken A/S	Denmark	Sweden	120.613	7.8	1529.1	112.1
9	Domestic	13.11.02	Banca Agricola Mantovana	Italy	Italy	1154.294	96.1	9856	829.1
10	Domestic	13.11.02	Banca Toscana	Italy	Italy	1256.525	108.6	14214.4	1072.1

11	Domestic	11.12.02	Credit Lyonnais SA	France	France	18435.401	723.8	180108.3	11151.4
12	Domestic	16.12.02	Credit Lyonnais SA	France	France	19408.848	723.8	180108.3	11151.4
13	Domestic	18.03.03	Gjensidige NOR ASA	Norway	Norway	3817.456	215.7	36418.3	2333
14	Domestic	02.07.03	Credit Lyonnais SA	France	France	22230.97	894	256376.8	10429.6
15	Domestic	18.07.03	Entenial SA	France	France	707.924	26.4	10784.8	334.3
16	Domestic	19.12.03	Banco Atlantico SA	Spain	Spain	1865.339	54.9	10149.5	593.6
17	Domestic	19.12.03	Kaupthing Bunadarbanki hf	Iceland	Iceland	625.594	66	5313.9	424.6
18	Domestic	06.02.04	Entenial SA	France	France	745.632	137	18582.9	728.8
19	Domestic	05.05.04	Entenial SA	France	France	734.171	137	18582.9	728.8
20	Domestic	21.06.04	CFCAL Banque	France	France	1417.162	6.8	807.9	49.2
21	Cross-border	29.06.04	BIM SpA	Italy	Belgium	1027.965	36.2	3102.3	401.3
22	Domestic	30.06.04	Deutsche Bank AG	Germany	Germany	42938.344	784.9	1008068	30250.4
23	Domestic	27.10.04	Nordea Bank AB	Sweden	Sweden	29505.53	2112.6	325837.8	15494.8
24	Cross-border	15.11.04	Bolig-og Naeringsbanken AS	Norway	Iceland	532.297	31.8	5752.7	319.9
25	Cross-border	15.11.04	Bolig-og Naeringsbanken AS	Norway	Iceland	532.297	31.8	5752.7	319.9
26	Domestic	18.04.05	Banca Antonveneta SpA	Italy	Italy	9833.996	385.5	61172.9	4028.1

27	Cross-border	12.06.05	Bank Austria Creditanstalt AG	Austria	Italy	14527.217	874.7	191455.8	9600.2
28	Domestic	15.11.05	Eurohypo AG	Germany	Germany	8070.925	522.5	289603.2	7215
29	Domestic	13.03.06	Banco BPI SA	Portugal	Portugal	9327.131	442.6	48614.2	2411.6
30	Cross-border	03.04.06	Finansbank AS	Turkey	Greece	5095.225	348.3	13273.6	
31	Cross-border	05.04.06	Bank Millennium SA	Poland	Portugal	2379.082	188.5	188.5	677.3
32	Domestic	18.05.06	Bipielle Investimenti SpA	Italy	Italy	3421.735	204.4	14629.4	2828.2
33	Cross-border	13.06.06	Emporiki Bank SA	Greece	France	4204.078	162.4	28047.4	1496
34	Cross-border	04.07.06	Egnatia Bank SA	Greece	Cyprus	763.613	21.4	4008.7	295.3
35	Domestic	26.08.06	SanPaolo IMI SpA	Italy	Italy	37562.527	2096	343570.1	16343.1
36	Domestic	16.10.06	Banca Popolare Italiana	Italy	Italy	3678.621	88.9	50136	5056.5
37	Domestic	14,11.06	Banca Lombarda e	Italy	Italy	7873.87	373.5	49367.5	4084.6
38	Domestic	04.12.06	Meliorbanca SpA	Italy	Italy	673.904	58.6	5372.5	492.3
39	Cross-border	07.12.06	Bank Linth	Switzerland	Liechtenstein	362.332	13.8	2797.7	202.8
40	Domestic	11.12.06	Finibanco Holding SGPS SA	Portugal	Portugal	597.775	24.4	2630.7	178.7
41	Cross-border	24.01.07	Bank Austria Creditanstalt AG	Austria	Italy	25354.255	3988.8	202414	13383.8

42	Cross-border	24.01.07	Bayerische Hypo- und Vereins	Germany	Italy	38865.696	2380	484635.3	30243.2
43	Domestic	06.03.07	Bank of Cyprus PCL	Cyprus	Cyprus	10754.19	412.9	32842.3	2040.1
44	Domestic	29.03.07	Banco Popolare di Verona	Italy	Italy	15692.927	1355.1	90181	6621.7
45	Domestic	29.03.07	Banca Popolare Italiana	Italy	Italy	10084.318	52.1	61565.2	5460.1
46	Domestic	18.06.07	Banca CR Firenze SpA	Italy	Italy	7237.449	383.3	33139.6	2400.1
47	Domestic	22.06.07	Julius Baer Holding AG	Switzerland	Switzerland	16056.654	551.2	29454.5	5627.1
48	Domestic	25.07.07	Banca CR Firenze SpA	Italy	Italy	8485.33	270.1	42431	2791.6
49	Domestic	11.09.07	Intesa SanPaolo SpA	Italy	Italy	97506.458	8613	813613.7	70994.2
50	Cross-border	19.11.07	Bankinter SA	Spain	France	13186.651	494	68395.5	2548.9
51	Cross-border	31.01.08	AKB Rosbank	Russian Fed	France	5817.6	250.9	16587.4	1664.6
52	Cross-border	22.02.08	Bulgarian American Credit Bank	Bulgaria	Ireland-Rep	656.091	48	630.1	135.4
53	Domestic	24.06.08	Meliiorbanca SpA	Italy	Italy	629.05	8.5	7014.2	582.8

54	Cross-border	14.07.08	Alliance & Leicester PLC	United Kingdom	Spain	2515.947	547	156802.4	4615.1
55	Cross-border	15.09.08	Lokalbanken I Nordsjaelland	Denmark	Sweden	147.916	12.4	1124.5	132.7
56	Domestic	17.09.08	HBOS PLC	United Kingdom	United Kingdom	7451.041	8033.8	1324623	47279.1
57	Domestic	25.09.08	Banco de Credito Balear SA	Spain	Spain	407.968	59.8	3774.1	370.7
58	Domestic	25.09.08	Banco de Galicia SA	Spain	Spain	770.738	126.7	7697.5	728
59	Domestic	25.09.08	Banco de Castilla SA	Spain	Spain	915.896	107	8644.6	870
60	Domestic	25.09.08	Banco de Vasconia SA	Spain	Spain	567.371	65.3	6788.8	416.9
61	Domestic	04.03.09	IW Bank SpA	Italy	Italy	273.259	16	4011.1	87.1
62	Domestic	19.05.09	Banco de Andalucia SA	Spain	Spain	1097.861	135.5	18170.4	1574.3
63	Domestic	03.06.10	Fortis Bank AS	Turkey	Turkey	1750.477	51.2	7696.9	1361.9
64	Domestic	25.06.10	Banco Guipuzcoano SA	Spain	Spain	419.914	33.2	13867.7	869
65	Cross-border	10.09.10	Bank Zachodni	Poland	Spain	5858.736	293.9	15770.1	1849.4

			WBK SA						
66	Domestic	01.10.10	Berlin-Hannoversche	Germany	Germany	2864.795	117.8	54515.8	1112.8
67	Cross-border	02.11.10	Turkiye Garanti Bankasi AS	Turkey	Spain	33280.863	2497.6	84967.6	11107.1
68	Cross-border	02.11.10	Turkiye Garanti Bankasi AS	Turkey	Spain	20599.604	2497.6	84967.6	11107.1
69	Domestic	26.11.10	Sandnes Sparebank	Norway	Norway	111.961	1.8	4731.9	287

Note: LTM is last twelve months

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