

THE NEXUS BETWEEN BANK M&AS AND FINANCIAL DEVELOPMENT



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Abstract

The financial system plays an important role in assuring the overall wellbeing of a nation, being fundamental to the growth mechanism of an economy. The consolidation and liberalization process in the past years has increased the scrutiny and the attention over the banking sector. Even if the mergers and acquisitions (M&As) are recognized as an important instrument of growth and power, little is still known about the implications on the economic evolution of the emerging markets. This article aims to investigate the link between banks M&As and the financial development of 16 countries from Central and Eastern Europe. From this perspective, a panel regression model that employs data of 213 restructuring operations from 2000 to 2018 was conducted. The empirical results show that there is a negative and significant connection between the pace of financial development and the dynamic of the banking system on short term, whereas we document a positive impact on long term, especially in the case of cross-border M&As. Thus, the materialization of a restructuring operation could affect the depth, access and efficiency of the banking system. Furthermore, the analysis provides evidence on the importance of cumulative cross-border transactions before and after the global financial crisis.

Keywords: banks, mergers and acquisitions, financial development

JEL Classification: G21, G34, O16

1. Introduction

The banking system is one of the most dynamic and complex sectors of an economy, despite the powerful legislation framework and supervision exercised by the national banks and other institutions. Given its comprehensiveness, it might be said that it has the power to influence the level of development and economic growth of any state. Huang (2010) supports this hypothesis, with the note that it is essential to differentiate between the concepts of financial development and economic growth. Although the two refer to distinct dimensions,

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micro and macro, they are strongly connected as the latter cannot exist without the former. From the same perspective, the studies of Schumpeter (1911), Hicks (1969) or Goldsmith (1969) emphasize the critical role of the banking system in the development process by transforming the savings into sustainable investments, which channel the new technologies and financial innovations. A more recent study of Levine (2005) considers that financial development improves the quality of the banking system from four perspectives: (i) ensures a consistent volume of savings, (ii) allocates capital to productive investments, (iii) diversifies risks, and (iv) provides an accurate exchange of goods and services. Taking into consideration that this topic has been of interest for so many years, it is important to quantify the interconnectedness of the banking system and the financial development in the recent economic and social context.

Our study aims to identify, but more important, to quantify, the main implications of the bank mergers and acquisitions on the banking system and the financial development. Its importance relies on the fact that the dynamics and the mobility of the financial sector can be captured through these types of restructuring operations which will be reflected in the end in the share prices, the quality of products and services or in the price paid for them by the customers. The globalization has increased the need for a healthy funding of the economy and the 2008 global financial crisis proved once again what could happen if the rules of the game were not well defined. In this context, it is crucial to understand how the market movements have positive or negative implications on the banking system.

The universality and incidence of the restructuring operations and the fact that they can be used both as a rescue boat and as an instrument of growth increased their popularity among foreign bankers. From this perspective, an important contribution of the study is the separation of the implications by each type of transaction - domestic and cross-border. Moreover, the 19 years analyzed (2000-2018) allow the inclusion of the financial crisis as a defining and differentiating variable in terms of investors' interests and preferences, another achievement being the definition of the level of transformation the year 2008 induced on the M&A market. The region chosen for the analysis is Central and Eastern Europe, a market that has attracted a lot of focus from the investors over the last years based on the multiple opportunities and growth potential: the accession of the countries to the European Union, the liberalization of the banking sector, the cost of labor or the increased interest of the consumers in the new financial services.

The comprehensiveness of the database in terms of time period, number of transactions (M&As) and financial data along with the localization (CEE) make the study a great contribution to the literature, highlighting the positive implications the bank mergers and acquisition could have on the banking system and the level of financial development of a country. Our results reveal a negative and significant association between bank M&As and financial development in the short-run, whereas the impact turns out to be beneficial in the long-run, especially in the case of cross-border transactions. Moreover, the analysis provides additional evidence of the importance of cumulative cross-border transactions before and after the global financial crisis.

2. Literature Review

The level of development or economic growth is very difficult to measure, one of the most used methods being the calculation of some indicators regarding the financial performance, market concentration, panel or time series analysis. Some studies have even used the ratio of loans or market capitalization to profit in order to quantify the magnitude of the banking

system. (Rajan and Zingales, 1998; Arcand *et al.*, 2015; Dabla-Norris and Srivisal, 2013) Taking into consideration the complexity and multitude of contextual variables that may influence the degree of financial development, Sahay *et al.* (2015) developed some proxies for each of the two areas – financial institutions (depth, access, efficiency) and financial markets (depth, access, efficiency). The first category includes banks, insurance companies, mutual or pensions funds, the second one, while capturing the stock and bond markets (Svirydzenka, 2016). Mohieldin *et al.* (2019), used the indices to determine the level of financial development and economic growth in Egypt during 1980-2016, showing the significant and positive relationship between them. Furthermore, the classical methods as the ones analyzing the financial performance confirmed the existence of a link between the increase in the gross domestic product and financial development. The influence over access and efficiency could not be demonstrated though.

It may be stated that the degree of financial development can be articulated from two perspectives: the first one refers to the direct observation and measurement of the size, access, and depth of the financial markets, and the second one is linked to a series of indicators regarding institutional, business and political environment. A strong and stable financial system leads to risk diversification, a mobilization of savings and an overall improved capital allocation. Taking into consideration the role, the dynamics and the complexity of the financial markets, it is very important to identify the implications of the banks' mergers and acquisitions in the process of growth and development. Knowing the interdependencies of restructuring operations, the intensity and frequency in the last decades, the M&As affect the level of market concentration, the access of the final consumers to a diversified portfolio of products and services, the financial stability through the risks they are exposed to and the operational and structural efficiency.

The most common methodology was the analysis of the financial performance of the new entity. Berger and Humprey (1992), Rhoades (1993), DeYoung (1993) or Akhavein and Humprey (1997) could not prove the existence of a synergy after the materialization of a bank M&A. Moreover, they claim that the use of performance indicators is incorrect because they do not control for the differences between input and output in terms of pricing and production. This limitation has been covered by different statistical methodologies that capture the effects by selecting the input (deposits) and the output (loans) factors: SFA - stochastic frontier approach, DFA - distribution free approach or TFA - thick border approach. The literature has shown that, on medium and long term, improvements in profitability rates, profits and dividends were identified, the expenses were made more efficient and the portfolio of products and services was improved and diversified. (Huizinga *et al.*, 2001; Diaz *et al.*, 2004; Cornett *et al.*, 2006; Al-sharkas *et al.*, 2008; Wanke *et al.*, 2016). The event studies analyze the extent to which the announcement of a bank merger or acquisition changes the share price of the listed entities. If it is on an upward trend, the operation itself has positively influenced the market and the economic overall wellbeing of shareholders. Cybo-Ottone and Murgia (2000) applied this methodology to 54 transactions from Europe, concluding on the efficiency of mergers and acquisitions in the stock markets. However, it should be noted that the price variation could be influenced by a multitude of factors, the results being inconclusive in some cases (Kumar *et al.*, 2011).

Globalization has been a game changer in terms of access and market penetration, the financial industry taking full advantage of these new opportunities. In the last decade, there has been an increasing trend of cross-border M&As, reaching 100 billion USD in 2020 (IMAA Institute, 2021). Nonetheless, there is still a considerable gap between the volumes recorded by the developed countries as compared to the emerging ones. Using the studies of di

Giovanni (2005) and Hyun and Kim (2010) that highlighted the importance of institutional and financial factors in identifying the new market, Nasir *et al.* (2015) conduct an analysis over 21 countries between 2000 and 2011 with the only objective of capturing the role of financial development on cross-border mergers and acquisitions. The results show that the capital market is a very important factor, as investors feel more comfortable with such acquisitions. At the same time, the inflation rate and the size of the market (reflected by GDP) are two other very important features. From this perspective, consumers' access to quality financial products and services could be also analyzed, the emerging markets succeeding in increasing the level of exposure through cross-border M&As.

Banking internationalization has maximized the financial development by capital inflow, liquidity, expertise and new technologies captured through operations such as cross-border mergers and acquisitions. They can help the host countries to stabilize and control their credit supply in times of stress and reallocate the financial values to their home country in case of need. Nonetheless, according to the 2017/2018 Financial Development Report, over 60% of respondents considered regional banks responsible for providing financial services to individuals and legal entities, as well as increasing consumer access. There is no doubt that the foreign banks are increasing the speed of shocks transmission and due to the cultural and political understanding and familiarity of the regional banks with the host countries, they are the most associated with the positive effects.

The nexus between the level of market concentration and financial development is not clear. Some researchers argue that the upturn of bank mergers and acquisitions will have negative effects over the development of the financial system. A relevant example is the study of Demirguc-Kunt and Levine (2000) which tested this hypothesis on a panel of commercial banks from 94 countries for the period 1990 to 1997. The four areas addressed were the efficiency and development of the financial system, the political structure, the institutional environment and the overall stability. The empirical results document that the level of market concentration has no influence over the bank's performance and financial development. Compared with other studies, their conclusions do not support the hypothesis of beneficial effects over the quality of banking services provided, investments and risk diversification. Moreover, it is assumed that high competitiveness will imply a weak collaborative relationship between market players, which will translate into lower investment in development and financial innovation. The work of Falahaty and Hook (2013) conclude on the opposite on 9 states in Middle East and North Africa over the period 1991 to 2009. Moreover, it finds strong and positive correlation between financial development and the level of market concentration.

Given all the advantages of the restructuring operations and their overall impact on the economy, the question is why there are still differences in the degree of financial development of different geographical regions and to what extent does the materialization of a merger and acquisition could help in the recovery process. The answer emerges from the influence of the institutional, business and political factors. The countries that have political challenges, with a non-performing allocation of resources have a problematical financial system, even if it is regulated. The Law and Finance Theory argues that the countries where the legal priority is the creditors' rights and the proper execution of contracts, they will also have a more developed financial system that will attract the interest of cross-border investors. (La Porta *et al.* 1997, 1998). The same conclusions were reinforced by Huang's (2010) theories that support the dependence between the quality of banks and institutions, as the latter reflect investor protection and market exposure.

3. Data and Methodology

3.1. Data

The sample consists of 213 mergers and acquisitions materialized between 2000 and 2018. The banks are located in one of the 16 countries of the Central and Eastern Europe as follows: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, North Macedonia, Poland, Romania, Republic of Serbia, Slovakia, Slovenia and Ukraine.³ As per Table A1 from the Appendix⁴, out of the 213 transactions, 52% were domestic M&As (110 operations) and 48% cross-border (103 operations). In order to have a consistent set of data, the financial entities are 100% active commercial banks. This will help us have accurate and relevant results, which could also be extrapolated to the entire financial system of the countries as the commercial segment is one of the strongest of any banking system. Taking into consideration the strong state influence, the high level of fragmentation and systemic fragility, the largest share of the transactions is held by Ukraine with 38 M&As materialized during 2000 and 2018. Poland ranks second, holding 12% of the total database. Being one of the least concentrated banking systems and with a rising assets value, the Polish market was of interest to both foreign and domestic investors. At the other end there are Estonia and Slovakia with less than 3% of total, mainly due to the reduced size and complexity of the financial systems. Excluding the extremes, the average is around 6%, each country being involved in more or less than 11 mergers or acquisitions during the focus period. We may conclude that the database was built in a homogeneous and balanced way, assuring sustainable results.

In Table A2 from the Appendix one may notice the distribution of the M&As during the 19 years the analysis focuses on. In the run up to the 2008 financial crisis, the cross-border mergers and acquisitions have led the database, once again confirming the positive economic environment and the investors' ability to channel financial funds to the emerging markets. Keeping in mind that the financial crisis emerged in the home countries where these large banks operate, it is very important to capture the differentiated behavior of the national and foreign players before, during and after the crisis (De Haas *et al.*, 2015). After 2008, the balance has changed towards the national M&As as an instrument of survival and coping mechanism to the new challenges. Moreover, between 2000 and 2008, more than 55% of the total transactions were materialized, as compared to only 45% in the next 10 years, showing the negative implication in terms of M&As contingency. The financial data were manually collated from the BankFocus and Zephyr platforms, the websites of the international organizations such as International Monetary Fund, the World Bank or Heritage Foundation, resulting in 287 country-year observations.

3.2. Methodology

Our dataset comprises 16 countries across 19 years (2000-2018) and thus the number of cross-sectional units is smaller than the number of periods. In this setting, an issue lies in the possibility of correlation between panels which is not addressed by clustering standard errors in the fixed effects (FE) panel estimator. To correct any possible autocorrelation, heteroskedasticity and cross-sectional dependence in the residuals, we perform a

³ Initial sample was made up of 17 countries, but due to unavailability of data for Montenegro, we ended up with 16 countries.

⁴ Appendix is available only online at journal page <https://www.ipe.ro/rjef.htm>

regression with Driscoll and Kraay standard errors (Driscoll and Kraay, 1998). Sources of cross-sectional dependence⁵ are unobserved common shocks (such as a recession), spillover effects, or omitted observed common factors (Andriès and Sprincean, 2021). In this approach, the error structure is assumed to be heteroskedastic, autocorrelated up to some lag, and correlated between panels, being robust to general forms of cross-sectional and temporal dependence when the time dimension becomes large. Unlike other techniques that deal with cross-sectional dependence of the residuals, the Driscoll and Kraay estimation is suitable for unbalanced panels and has better small sample properties than other methods (Hoechle, 2007).⁶ In this respect, we developed five models, using as a starting point the concept of financial development established by Sviridzenka (2016). The author considers that at financial institutions level (banks, insurance companies, mutual or pension funds) the financial development is identified at the intersection between depth (size and liquidity), access (the empowerment of individuals to access financial services) and efficiency (the ability of banks to provide the best services at the lowest costs). A series of macro and microeconomic indices regarding the stability and growth of the banking systems and the economy, as well as the legal framework were used to capture the effects and implications at country level (see Table A3 from the Appendix for a complete description of variables).

In conclusion, the empirical model used to demonstrate our hypothesis is as follows:

$$FD_{j,t} = \beta_0 + \beta_1 \times MAS_{j,t-1} + \beta_2 \times X_{j,t-1} + \beta_3 \times Z_{j,t-1} + \delta_j + \gamma_t + \varepsilon_{j,t} \quad (1)$$

where: $FD_{j,t}$ is the index of financial development⁷ of country j in year t , β_0 is the intercept, and $MAS_{j,t-1}$ denotes the number of bank mergers and acquisitions in country j during year $t-1$. $X_{j,t-1}$ is a $(k \times 1)$ vector of lagged banking system-level control variables, i.e., Z-score⁸ and Bank Concentration (Leroy, 2019) and $Z_{j,t-1}$ is a $(k \times 1)$ vector of lagged country-level control variables, i.e., real GDP growth, Inflation and Governance Index⁹ (Cull et al., 2005; Djankov et al., 2007; Kim and Wu, 2008; Le et al., 2016; Ng et al., 2016) associated with financial development in the literature. δ_j and γ_t are country and time fixed effects to capture country-specific time-invariant unobserved characteristics and heterogeneity across time, respectively, and $\varepsilon_{j,t}$ is the error term.¹⁰ The Governance Index is constructed similarly to Le et al. (2016) and Chen and Chen (2018) as an equally-weighted average of the six Worldwide Governance Indicators (WGI) of Kaufmann et al. (2011): (i) voice and accountability; (ii) political stability and absence of violence; (iii) government effectiveness; (iv) regulatory quality; (v) rule of law; and (vi) control of corruption, where higher values are associated with increased degree of governance. We use lagged

⁵ The Pesaran (2021) test for cross-sectional dependence confirms the presence of cross-sectional dependence in the residuals in most of the models.

⁶ This method was recently used by Andriès and Sprincean (2021).

⁷ In addition, we use Financial Institutions Index, Financial Institutions Depth, Financial Institutions Access, and Financial Institutions Efficiency.

⁸ Other studies (e.g., Ozili, 2019) employ the ratio of non-performing loans to gross loans as proxy for bank soundness. Due to availability of the data, we have chosen to use Z-score in order to maximize the number of observations. However, the findings remain consistent regardless of proxy employed.

⁹ The values for 2001 are missing for all six dimensions of governance. To maximize the number of observations, we perform linear interpolation to derive the values for 2001.

¹⁰ The Hausman test indicated that the fixed effects estimator is appropriate across all models.

independent variables to control for the speed of adjustment of mergers and acquisitions transactions and to account for potential endogeneity issues (Melecky and Podpiera, 2013).

The five models developed for the overall financial development index, the financial institutions index, the financial institutions depth, access and efficiency were designed in multiple instances and scenarios as individual versus cumulative, national versus cross-border, before versus after the global financial crisis. In this way, the analysis has captured all the dimensions and the implications of the mergers and acquisitions over the financial development.

The model from Eq. (1) captures the short-term impact of M&As transactions on financial development. To highlight the long-term effects, we employ cumulative number of M&As in the following specification:

$$FD_{j,t} = \beta_0 + \beta_1 \times \text{Cumulative MAs}_{j,t} + \beta_2 \times X_{j,t-1} + \beta_3 \times Z_{j,t-1} + \delta_j + \gamma_t + \varepsilon_{j,t} \quad (2)$$

To test the robustness of our findings, we employ a different estimation method, *i.e.*, panel-corrected standard errors (Beck and Katz, 1995), where the error term is assumed to be heteroskedastic (each panel has its own variance) and contemporaneously correlated across the panels (each pair of panels has its own covariance).

4. Empirical Results

4.1. Descriptive Statistics

Table 1 presents the descriptive statistics of the variables used in the empirical analysis.

Table 1

Summary Statistics

Variables	Mean	St. dev.	p25	Median	p75	Min	Max	Obs.
Financial Development Index	0.3041	0.1126	0.2207	0.2777	0.4017	0.1079	0.5695	287
Financial Institutions Index	0.4572	0.1139	0.3918	0.4630	0.5207	0.1805	0.6926	287
Financial Institutions Depth	0.2104	0.0822	0.1414	0.1986	0.2819	0.0294	0.3897	287
Financial Institutions Access	0.5149	0.1882	0.3998	0.5004	0.6228	0.0888	0.9233	287
Financial Institutions Efficiency	0.5895	0.1141	0.5501	0.6181	0.6558	0.0748	0.7709	287
M&As	0.6725	1.0923	0.0000	0.0000	1.0000	0.0000	6.0000	287
Domestic M&As	0.3624	0.6904	0.0000	0.0000	1.0000	0.0000	3.0000	287
Cross-border M&As	0.3101	0.7605	0.0000	0.0000	0.0000	0.0000	6.0000	287
Bank Z-score	8.5864	4.5464	5.1591	6.9804	12.4894	1.0139	18.6402	270
Bank Concentration (%)	61.2086	15.9066	50.2700	58.8873	71.3433	26.9864	100.00	271
Real GDP Growth (%)	3.3105	3.9643	2.0246	3.6291	5.5100	-14.8386	12.1088	287
Inflation (%)	4.9287	7.4505	1.4509	3.2553	5.4440	-9.7275	86.8262	287
Governance Index	0.3533	0.5422	-0.0923	0.4574	0.8202	-0.8317	1.2200	287

One may notice that the Financial Development Index ranges between 0.1079 (Albania) and 0.5695 (Hungary), with a mean of 0.3041 and a standard deviation of 0.1126.

The values for Financial Institutions Index vary between 0.1805 (Serbia) and 0.6926 (Slovenia), with an average of 0.4572 and a standard deviation of 0.1139. The number of bank mergers and acquisitions by country vary between 3 and 38. Table A3 from the Appendix exhibits the description of variables whereas Table A4 shows the correlation matrix.

4.2. Baseline Results

The main objective of this study was to capture the implications of the banks mergers and acquisitions on the financial systems. In theory, the dynamic of the markets should affect the degree of concentration and by this apply a constructive level of competition which will lead to better and healthier/safer financial products and services. They improve the capital flows and allocations between regions and countries from a financial, operational and knowledge point of view. If all of these are backed up by a flexible but accurate legal framework, the financial system should develop in a sustainable way.

Table 2

The Impact of Domestic and Cross-border M&As on Financial Development

	(1)	(2)	(3)	(4)	(5)
Variables	Financial Development Index	Financial Institutions Index	Financial Institutions Depth	Financial Institutions Access	Financial Institutions Efficiency
M&As (t-1)	-0.0045* (0.0023)	-0.0023** (0.0011)	-0.0026 (0.0015)	-0.0048 (0.0033)	0.0031 (0.0032)
Bank Z-score (t-1)	-0.0012 (0.0011)	-0.0057*** (0.0019)	0.0010 (0.0010)	-0.0116*** (0.0029)	-0.0046 (0.0039)
Bank Concentration (t-1)	-0.0007*** (0.0002)	-0.0012*** (0.0002)	-0.0002 (0.0003)	-0.0030*** (0.0003)	0.0006 (0.0004)
Real GDP Growth (t-1)	0.0002 (0.0010)	0.0024 (0.0016)	0.0002 (0.0015)	0.0009 (0.0018)	0.0077*** (0.0022)
Inflation (t-1)	0.0006*** (0.0002)	-0.0003 (0.0003)	0.0003 (0.0003)	-0.0006 (0.0004)	-0.0006 (0.0007)
Governance Index (t-1)	0.0684** (0.0250)	0.0492* (0.0280)	0.0008 (0.0331)	0.0199 (0.0532)	0.1581*** (0.0509)
Constant	0.2878*** (0.0186)	0.4474*** (0.0194)	0.1312*** (0.0253)	0.6493*** (0.0445)	0.4575*** (0.0462)
Observations	287	287	287	287	287
Countries	16	16	16	16	16
R-squared	0.574	0.754	0.508	0.726	0.418
Country FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: This table exhibits the estimation results of Eq. (1) by employing a regression with Driscoll and Kraay standard errors (Driscoll and Kraay, 1998) to correct for any possible cross-sectional dependence. Driscoll and Kraay standard errors in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10%, respectively.

Considering the above as the starting point of our analysis, one of the questions was if the results would materialize in the short-run or on a longer period. Table 2 shows the first set of results, considering the effects on short term. The estimated coefficients are negative and statistically significant in Model (1) and Model (2), *i.e.*, for Financial Development Index (Model (1)) and Financial Institutions Index (Model (2)), highlighting the complexity and the risks the restructuring operations could have. Given these challenges, a period of operational and structural harmonization will always be required, a time to align the culture, the systems, the strategies and the business plans of the two partners. The control variables reveal the importance of the banking system soundness (Z-score) and regulatory framework proxied by the Governance Index. In other words, a more stable banking sector is associated with lower financial development because these banks are more prudent and hold higher capital buffers, and are less likely to provide finance to firms (Gorton and Winton, 2017; Naiki and Ogane, 2019). The institutional quality, which was found by Doucouliagos *et al.* (2021) in their meta-regression analysis to be positively correlated with financial development, and the implication of the national authorities could reduce and streamline the transition period. The correlation between the value of Real GDP Growth and the level of financial development is found to be positive and significant only for Financial Institutions Efficiency, whereas for other proxies the relationship lacks significance, results that are broadly in line with those of Girma and Shortland (2008). It is widely believed that inflation hampers financial development (Doucouliagos *et al.*, 2021). However, Khan *et al.* (2008) argue that the detrimental effect manifests only after a specific threshold is reached, whereas Boyd *et al.* (2001) document that financial development has a strong negative relationship with inflation only for countries with low-to-moderate rates of inflation. We report a positive and significant influence of inflation manifested only on Financial Development Index, whereas for Financial Institutions Index, Financial Institutions Access and Financial Institutions Efficiency the coefficients are negative, but do not bear statistical significance.

Another view would be similar with the research of Leroy (2019), who assess by using the Boone indicator and the Lerner index the negative effects of an increased level of competition. The materialization of the restructuring operations lowers the number of the market players and increases the pressure on the remaining ones. The level of informational asymmetry rises and banks no longer cooperate, the innovation and the financial integration remaining on hold. A clear conclusion regarding the nexus between the market share and the economic growth has not yet been reached by the literature, pro and cons studies coexisting. Our results are in line with the ones that identified an inversely proportional correlation. Carletti *et al.* (2002) associated the increase in market share to lower interest rates and an improvement of the liquidity risk. From this perspective, two hypotheses have been developed – SCP or structure conduct performance and ESP or efficient structure performance. The first one refers to the direct and positive relationship between the level of concentration and the financial efficiency of the banking systems in comparison with the other one which highlights the power of the institutions with greater market share in the process of changing the interest rates. One of the oldest papers in this field belongs to Aspinwall (1970), who supports this very link between interest rates and the number of financial institutions. Analyzing our results from this perspective, regardless of the typology of M&A (domestic/cross-border), a higher level of concentration will negatively influence the market dynamics, especially given the emergence of all markets of the analyzed countries. Many of them went through a significant period of transition from a centrally-planned regime to privatization and market liberalization. Moreover, the exposure and openness to the West has been quite limited, as evidenced by the major share of domestic mergers and acquisitions to the detriment of cross-border ones.

A study of Subramaniam *et al.* (2019) uses 78 SE Asian financial institutions data between 2011 and 2016 in order to examine the nexus between financial development, competition and efficiency using a Data Envelopment Analysis methodology and the Herfindahl-Hirschman and Lerner indices. The results show a significant and positive link between competition and efficiency, but a lack of correlation between financial development and the two. The conclusions focused on the negative effects of development of the financial system over the banks' efficiency and the capital allocation. Three other studies were in line with this one, highlighting not the negative correlation *per se* but the lack of it, maintaining that growth and the level of economic expansion are not based on the evolution and the stage of the banking system (Narayan and Narayan, 2013; Grassa and Gazdar, 2014; Ductor and Grechyna, 2015). In the same vein, a study of Ijaz *et al.* (2018) shows on a sample of 38 European countries during 2001–2007 that a stable and performing bank system helps enhancing the financial development of a country. These findings are also confirmed by the papers of Hermes and Lensink (2000), Bonin and Watchel (2003), Fink *et al.* (2005), Kenourgios and Samitas (2007), Casu and Girardone (2009) or Caporale *et al.* (2015), which demonstrate the positive and significant importance of the financial system. Compared with the study focused on the South-East Asia, a higher level of competition was associated with an increase of the stability and economic development, highlighting the importance of the countries particularities as well.

A second step in our study was to differentiate the effects of the domestic and cross-borders mergers and acquisitions (Appendix Tables A5 and A6, respectively). This exercise was carried out both individually, highlighting the short-term effects, and cumulative, to capture the trend of the financial institutions after the transition completion. The results confirm again the negative impact that banking consolidation has on the short-run financial development, but only in the case of domestic transactions. A possible explanation could be the fact that in general the objectives of the national M&As are cost minimizations, which can be achieved by closing some of the branches and significant layoffs. For cross-border M&As, the results are not significant from statistical standpoint. In terms of control variables, the quality of governance, the stability of the banking system and bank concentration exert the greatest influence on financial development, enhancing once more the importance of the state authorities and national policies.

The cumulative impact exhibited in Table A5 highlights the significant and positive link with two of the proxies we have used – Financial Institutions Index and Financial Institutions Access. However, in the case of Financial Institutions Depth, the results show a negative link with cumulative M&As similarly to those for short-term impact of domestic M&As, once again demonstrating that in terms of competition the results are supporting the ESP or efficient structure performance (Carletti *et al.*, 2002). Another justification could be the fact that a higher level of competition will decrease the cooperation and communication among players, which will lead in the end to a low interest in financial innovation and growth.

The literature has always emphasized the importance of these strategies in achieving operational and financial synergies, conquering new markets and improving the banking system through financial innovation. (Altunbaş and Marques, 2008) These findings are consistent with our initial hypotheses, confirming the medium and long-term beneficial effects on economic growth and overall wellbeing. The significant control variables are as in the previous cases the regulations and the effectiveness of government policies and inflation level.

Table 3
The Impact of Cumulative Domestic and Cross-Border M&As on Financial Development

	(1)	(2)	(3)	(4)	(5)
Variables	Financial Development Index	Financial Institutions Index	Financial Institutions Depth	Financial Institutions Access	Financial Institutions Efficiency
Cumulative M&As	0.0010 (0.0009)	0.0016** (0.0006)	-0.0021* (0.0010)	0.0051*** (0.0009)	0.0012 (0.0017)
Bank Z-score (t-1)	-0.0008 (0.0009)	-0.0052** (0.0019)	0.0005 (0.0009)	-0.0102*** (0.0029)	-0.0044 (0.0043)
Bank Concentration (t-1)	-0.0005 (0.0004)	-0.0008*** (0.0002)	-0.0006** (0.0003)	-0.0018*** (0.0004)	0.0008 (0.0006)
Real GDP Growth (t-1)	0.0004 (0.0012)	0.0027 (0.0018)	-0.0000 (0.0013)	0.0017 (0.0025)	0.0078*** (0.0020)
Inflation (t-1)	0.0007*** (0.0002)	-0.0003 (0.0003)	0.0003 (0.0003)	-0.0006 (0.0004)	-0.0006 (0.0007)
Governance Index (t-1)	0.0691** (0.0252)	0.0524* (0.0267)	-0.0060 (0.0309)	0.0315 (0.0468)	0.1626*** (0.0502)
Constant	0.2570*** (0.0305)	0.4095*** (0.0185)	0.1684*** (0.0231)	0.5331*** (0.0427)	0.4410*** (0.0711)
Observations	287	287	287	287	287
Countries	16	16	16	16	16
R-squared	0.569	0.757	0.522	0.740	0.418
Country FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: This table exhibits the estimation results of Eq. (2) by employing a regression with Driscoll and Kraay standard errors (Driscoll and Kraay, 1998) to correct for any possible cross-sectional dependence. Driscoll and Kraay standard errors in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10%, respectively.

In terms of efficiency, our results do not reveal a significant link between these two with the note that the estimated coefficient is positive. Nonetheless, there are many studies that showed improvements in the profitability of financial institutions and cost efficiency, increased stock prices for those listed on the stock exchange or a better capitalization (Huizinga *et al.*, 2001; Diaz *et al.*, 2004; Cornett *et al.*, 2006; Al-sharkas, Hassan and Lawrence, 2008; Wanke *et al.*, 2016). Banks with financial problems will have a higher interest among investors, studies such as those of Pilloff (1996), Peek *et al.* (1999), Berger *et al.* (2000) demonstrating how the performance of the banking system is improved due to this continuous exercise of "market cleaning". Another aspect worth mentioning is the level of funding and additional capital the cross-border M&As are capturing into the market they activate.

From an access perspective, the positive and significant correlations identified by our study can be analyzed in two ways. First, the portfolio of products and services is diversified and improved, individuals and legal entities having at their disposal multiple and exceptional financial solutions. Moreover, given the particularities of the Central and Eastern European emerging markets, consumers have availed from the same alternatives as those in the West through the cross-border M&As. The transition from centrally-planned to the free market and the withdrawal of the state control were real growth opportunities for investors operating in

mature and developed markets, opportunities they happily secured. Second, we need to consider the number of the financial institutions per capita and the dispersal by regions. Even if at a first glance the materialization of a merger or acquisition implies a decrease and a streamline from a regional perspective, the new plan often involves growth strategies, especially in the context of the lack of digitalization, the consumers feeling more comfortable going to the branches and addressing the issues face to face.

The cumulative effect has been also divided into national (Table A7 from the Appendix) and cross-border (Table A8 from the Appendix) transactions. The domestic M&As appear not to be significantly correlated with any of the proxies for financial development. We need to consider that the main objective of a national merger or acquisition will probably be translated into an improvement of the cost efficiency, which will be achieved by closing some branches, disposal of human resources or systems automation. All of these will make a difference in terms of financial and operational synergies, the research and development areas remaining in the background.

Berger *et al.* (2000) develop two hypotheses, one that is supporting the national M&As and the other one the cross-border ones – home field advantage hypothesis versus global advantage hypothesis. The materialization of a restructuring operation in which both actors act on the same geographic market has several cultural and operational advantages. Differences in language, time zone or work style and culture can negatively impact the transition stage. Moreover, there may be issues in monitoring the activity which may translate into difficulties on the evaluation and integration of the employees. Another advantage would be the know-how and familiarity of shareholders regarding the regulatory and fiscal framework, the market or the customers and their needs. On the other hand, the expansion to another market offers the possibility to improve and apply good practices and procedures that will be quantified in a relatively short period into operational synergies. The global hypothesis has two meanings: a general one, by which all financial institutions moving to another country will successfully manage all difficulties and perform better than the domestic banks, regardless of the market of origin, and a limited one, that refers only to certain institutions from certain financial markets, with certain particularities that will be capable of this success. Berger *et al.*'s (2000) research was built by taking into account data from 11 countries, such as Germany, the US, South Korea or Switzerland. In the case of France, Germany, Spain and the United Kingdom entities resulted after a cross-border transaction proved not to be as effective as the national M&As. On a closer analysis, the limited acceptance of the global hypothesis by country of origin was demonstrated, with only a few banks in certain financial markets performing better than the domestic ones (especially those in the US). The same conclusions were drawn by Eckbo and Thorburn (2000), Cybo-Cottone and Murgia (2000) or Rose *et al.* (2018), who campaigned for national M&As as the only ones which could bring value and help the financial system grow and develop.

Our study emphasizes that the most significant and positive implications are achieved by a cross-border M&A. Even if these kinds of transactions imply multiple and diverse risks, for the Central and Eastern European banking market they translated into new capital flows, know-how and technologies that helped the transition from centrally planned to the market economy. A study of Brooks and Jongwanich (2011) applied to the emerging Asian countries also demonstrated that cross-border M&As had a positive impact on a country's financial development among the regulatory framework, market size, labor market or the capital quality. Other studies that confirmed cross-border synergies are those of Hazelkorn *et al.* (2004) or Dutta *et al.* (2013) according to which the level of experience, the financial means and know-how contribute to increasing performance and improving profitability indicators on

medium and long term. These aspects are also confirmed by the control variables that show strong significance ranges: the efficiency of the governance model, the banking system soundness, and bank concentration. Our results are backed up by the quantitative analysis of the data set where the occurrence of the cross-border M&As was much more dynamic before the financial crisis. However, if in 2008 foreign banks accounted for 41.4% of total assets, in 2018 the percentage rises at 69.7% (Raiffeisen Bank International, 2020). The most important groups were and will remain the Erste Group (Austria), Raiffeisen Bank International (Austria), OTP Bank (Hungary), UniCredit (Italy) and Société Générale (France), the majority being those with Austrian capital. Over the last 10-15 years, Central and Eastern Europe has gone through a period of consolidation due to the accession to the European Union. The market is also attractive to foreign investors because of the excellent cost-quality ratio of labor, culture and the time zone close to the West, as well as consumer's interest in new savings and lending solutions.

4.3. Robustness Checks

In this section, we present the empirical findings by employing a different estimation technique, i.e., panel-corrected standard errors (PCSE) of Beck and Katz (1995). In this approach, the disturbances are assumed to be heteroskedastic and contemporaneously correlated across the panels, and is suitable for data with $T > N$. The findings are displayed in Table 4 for short-term effects and Table 5 for the long-run impact.

On short term, bank mergers and acquisitions are negatively correlated with the level of financial development proxies, confirming our previous results, but the estimated coefficients are not statistically significant for overall M&As, that is, for both domestic and cross-border. However, they turn out to be significant in the case of domestic M&As.¹¹ The coefficients of control variables maintain their sign and significance as in the case of baseline models. The conclusions are similar for long-term models, with M&As having a significant and positive impact on Financial Development Index, Financial Institutions Index and Financial Institutions Access.

Table 4
Robustness Assessment: The Impact of Domestic and Cross-Border M&As on Financial Development

	(1)	(2)	(3)	(4)	(5)
Variables	Financial Development Index	Financial Institutions Index	Financial Institutions Depth	Financial Institutions Access	Financial Institutions Efficiency
Cumulative M&As	-0.0000 (0.0011)	-0.0001 (0.0012)	-0.0006 (0.0010)	0.0006 (0.0014)	0.0010 (0.0035)
Bank Z-score (t-1)	-0.0010 (0.0010)	-0.0038*** (0.0012)	-0.0001 (0.0011)	-0.0039** (0.0016)	-0.0064** (0.0029)
Bank Concentration (t-1)	-0.0002 (0.0002)	-0.0003 (0.0003)	-0.0000 (0.0003)	-0.0004 (0.0004)	0.0004 (0.0006)
Real GDP Growth (t-1)	0.0002 (0.0005)	0.0010 (0.0007)	-0.0002 (0.0006)	-0.0001 (0.0009)	0.0051*** (0.0014)
Inflation (t-1)	0.0003 (0.0002)	-0.0000 (0.0003)	0.0002 (0.0002)	0.0001 (0.0004)	-0.0005 (0.0009)

¹¹ Results are available upon request.

	(1)	(2)	(3)	(4)	(5)
Governance Index (t-1)	0.0378*	0.0432*	0.0017	0.0688**	0.1179**
	(0.0204)	(0.0232)	(0.0227)	(0.0292)	(0.0526)
Constant	0.1418***	0.2807***	0.0193	0.2416***	0.6100***
	(0.0328)	(0.0420)	(0.0340)	(0.0549)	(0.0804)
Observations	287	287	287	287	287
Countries	16	16	16	16	16
R-squared	0.831	0.777	0.579	0.727	0.615
Country FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: This table exhibits the estimation results of Eq. (1) by employing the panel-corrected standard errors technique (Beck and Katz, 1995) where the error term is assumed to be heteroskedastic and contemporaneously correlated across the panels. Panel-corrected standard errors in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10%, respectively.

Table 5
Robustness Assessment: The Impact of Cumulative Domestic and Cross-border M&As on Financial Development

	(1)	(2)	(3)	(4)	(5)
Variables	Financial Development Index	Financial Institutions Index	Financial Institutions Depth	Financial Institutions Access	Financial Institutions Efficiency
Cumulative M&As	0.0015*	0.0018*	-0.0006	0.0041***	0.0001
	(0.0007)	(0.0010)	(0.0013)	(0.0014)	(0.0018)
Bank Z-score (t-1)	-0.0009	-0.0036***	-0.0001	-0.0036**	-0.0064**
	(0.0010)	(0.0012)	(0.0011)	(0.0015)	(0.0029)
Bank Concentration (t-1)	-0.0000	-0.0001	-0.0001	-0.0002	0.0005
	(0.0003)	(0.0003)	(0.0003)	(0.0004)	(0.0006)
Real GDP Growth (t-1)	0.0003	0.0010	-0.0001	-0.0001	0.0051***
	(0.0005)	(0.0007)	(0.0006)	(0.0008)	(0.0014)
Inflation (t-1)	0.0002	0.0000	0.0002	0.0002	-0.0005
	(0.0002)	(0.0003)	(0.0002)	(0.0004)	(0.0009)
Governance Index (t-1)	0.0363*	0.0445*	-0.0001	0.0777***	0.1197**
	(0.0209)	(0.0239)	(0.0227)	(0.0283)	(0.0535)
Constant	0.1290***	0.2658***	0.0205	0.2199***	0.6117***
	(0.0317)	(0.0404)	(0.0347)	(0.0532)	(0.0788)
Observations	287	287	287	287	287
Countries	16	16	16	16	16
R-squared	0.817	0.763	0.591	0.694	0.616
Country FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: This table exhibits the estimation results of Eq. (2) by employing the panel-corrected standard errors technique (Beck and Katz, 1995) where the error term is assumed to be heteroskedastic and contemporaneously correlated across the panels. Panel-corrected standard errors in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10%, respectively.

4.4. Further Analysis

The last part of our study is the analysis of the impact of the 2008 financial crisis on the banks' merger and acquisitions and financial development. From this perspective, the database was divided into two periods: 2000-2007 being considered the pre-crisis period, and 2008-2018 the crisis and post-crisis period.¹² Even if they are not very balanced, the samples allow us to draw some conclusions about how the financial crisis of 2008 changed the behavior of investors in the banking market, affecting financial development. Taking into consideration that the 2008 episode was a banking and systemic crisis, the entire financial system was exposed to a great amount of stress. From a legal perspective, the capital requirements were increased, new reforms have been implemented (Dodd-Frank act in the US - 2010, Financial Services Act in the UK - 2013) and new institutions focusing on risk management (European Systemic Risk Board or European System of Financial Supervisors) were developed (Rao-Nicholson and Salaber, 2014).

The large period allows us to draw some conclusion in terms of the M&As strategy implemented by the investors from Central and Eastern Europe before and after 2008. Some authors, such as Berger *et al.* (2000), consider the financial crisis as a multiplier of the restructuring operations. Sigurjonsson and Mixa (2011) confirm this hypothesis on a dataset comprised of Sweden and Finland; after the banking crisis of the late 1990s many M&As being closed. The same conclusions were drawn at the level of the emerging markets from South America confirming the same upward trend after the famous tequila crisis of 1994-1995 (Crystal *et al.*, 2001; Gelos and Roldos, 2004)). On a first look at the database, the results do not confirm this hypothesis. From this perspective, between 2000 and 2008 there were 118 transactions as compared to only 95 in the period 2009-2018. Moreover, if in the pre-crisis period 67% of the sample were cross-border M&As, after 2008 their share was only 33%. According to the study conducted by Rao-Nicholson and Salaber (2014) on an international sample of financial institutions that underwent a restructuring operation between 2000 and 2013, the manifestation of the financial crisis had a negative impact on the banking market, both in terms of value and the number of transactions.

In Tables 6 and 7 are exhibited the individual effects of the bank mergers and acquisitions before and after the 2008 crisis, respectively.

Table 6
**The Impact of Domestic and Cross-border M&As on Financial Development
 before the Global Financial Crisis**

	(1)	(2)	(3)	(4)	(5)
Variables	Financial Development Index	Financial Institutions Index	Financial Institutions Depth	Financial Institutions Access	Financial Institutions Efficiency
Cumulative M&As	0.0024 (0.0038)	0.0039 (0.0040)	-0.0018 (0.0027)	0.0041 (0.0052)	0.0114 (0.0080)
Bank Z-score (t-1)	0.0031 (0.0020)	-0.0043* (0.0025)	0.0012 (0.0019)	-0.0054 (0.0038)	-0.0099* (0.0052)
Bank Concentration (t-1)	0.0011* (0.0006)	-0.0003 (0.0006)	-0.0005 (0.0006)	0.0002 (0.0008)	-0.0008 (0.0015)

¹² Because the number of cross-sectional units is larger than the time dimension, we apply the FE estimator. Our motivation is also backed up by the lack of cross-sectional dependence as demonstrated by Pesaran (2021) test.

	(1)	(2)	(3)	(4)	(5)
Real GDP Growth (t-1)	0.0015 (0.0014)	0.0029* (0.0014)	0.0017 (0.0016)	-0.0006 (0.0022)	0.0097** (0.0042)
Inflation (t-1)	0.0004 (0.0004)	0.0004 (0.0004)	0.0004 (0.0005)	0.0001 (0.0005)	0.0008 (0.0007)
Governance Index (t-1)	-0.0913*** (0.0307)	-0.0104 (0.0422)	-0.1138** (0.0491)	0.0681 (0.0497)	0.0325 (0.0874)
Constant	0.1206** (0.0534)	0.3597*** (0.0621)	0.1601*** (0.0472)	0.3383*** (0.0890)	0.5836*** (0.1291)
Observations	112	112	112	112	112
Countries	16	16	16	16	16
R-squared	0.757	0.858	0.622	0.831	0.511
Country FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: This table exhibits the estimation results of Eq. (1). Robust standard errors in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10%, respectively.

Table 7
The Impact of Domestic and Cross-border M&As on Financial Development after the Global Financial Crisis

	(1)	(2)	(3)	(4)	(5)
Variables	Financial Development Index	Financial Institutions Index	Financial Institutions Depth	Financial Institutions Access	Financial Institutions Efficiency
Cumulative M&As	-0.0043 (0.0041)	-0.0026 (0.0024)	-0.0004 (0.0035)	-0.0080* (0.0044)	0.0039 (0.0030)
Bank Z-score (t-1)	0.0010 (0.0024)	0.0011 (0.0032)	0.0008 (0.0028)	-0.0001 (0.0063)	0.0030 (0.0067)
Bank Concentration (t-1)	-0.0007 (0.0005)	-0.0004 (0.0008)	-0.0003 (0.0006)	-0.0014 (0.0012)	0.0014 (0.0010)
Real GDP Growth (t-1)	-0.0020** (0.0007)	-0.0014 (0.0011)	-0.0024** (0.0010)	-0.0034 (0.0025)	0.0040** (0.0018)
Inflation (t-1)	-0.0001 (0.0006)	-0.0001 (0.0010)	-0.0002 (0.0008)	0.0006 (0.0020)	-0.0008 (0.0012)
Governance Index (t-1)	0.1007** (0.0455)	-0.0082 (0.0476)	0.0939** (0.0404)	-0.1580* (0.0807)	0.0768 (0.0933)
Constant	0.3503*** (0.0335)	0.5328*** (0.0538)	0.2278*** (0.0517)	0.7582*** (0.0687)	0.4524*** (0.0631)
Observations	175	175	175	175	175
Countries	16	16	16	16	16
R-squared	0.282	0.0675	0.199	0.297	0.317
Country FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: This table exhibits the estimation results of Eq. (1). Robust standard errors in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10%, respectively.

During 2000 to 2007, their materialization transposed into a positive correlation at all levels of the financial development with the exception of depth of financial institutions, but the findings are not significant at the conventional levels. However, during and after the global financial crisis, the short-run impact of bank M&As from Central and Eastern Europe is

negative and significant at the 10% level for Financial Institutions Access. This implies that the exposure of the financial services decreased, along with the empowerment of individuals to access them. The consumers focused on the debt repayment rather than savings or other financial instruments.

In terms of control variables, the level of bank concentration has a negative and significant coefficient demonstrating how a small number of players will allow market manipulation. From this perspective, the literature claims two hypotheses: concentration-stability, which supports the beneficial effects of competition on the development of the financial systems (Allen and Gale, 2003) and concentration-fragility, which associates to the markets with fewer players a higher level of risk (Beck *et al.*, 2006). The findings of our research are in line with the second one, the manifestation of mergers and acquisitions leading to a more concentrated market, banks being exposed to the too big to fail risk.

The cumulative findings confirm the positive implications on the financial development before the financial crisis (Table 8). During and after the GFC (2008-2018 period) (Table 9), we document a negative and significant impact on Financial Institutions Depth, which is consistent with our baseline results.

Table 8
The Impact of Cumulative Domestic and Cross-border M&As on Financial Development before the Global Financial Crisis

Variables	(1)	(2)	(3)	(4)	(5)
Financial Development Index					
Cumulative M&As	0.0033*	0.0027	0.0002	0.0041	0.0033
(0.0016)	(0.0028)	(0.0025)	(0.0040)	(0.0050)	
Bank Z-score (t-1)	0.0028	-0.0047*	0.0013	-0.0058	-0.0106*
(0.0018)	(0.0024)	(0.0019)	(0.0037)	(0.0053)	
Bank Concentration (t-1)	0.0013**	-0.0003	-0.0004	0.0004	-0.0011
(0.0005)	(0.0007)	(0.0007)	(0.0008)	(0.0014)	
Real GDP Growth (t-1)	0.0018	0.0030*	0.0019	-0.0004	0.0090**
(0.0012)	(0.0014)	(0.0016)	(0.0024)	(0.0042)	
Inflation (t-1)	0.0004	0.0004	0.0004	0.0001	0.0008
(0.0004)	(0.0004)	(0.0005)	(0.0005)	(0.0008)	
Governance Index (t-1)	-0.0907***	-0.0049	-0.1191**	0.0715	0.0570
(0.0288)	(0.0446)	(0.0535)	(0.0541)	(0.0940)	
Constant	0.1091**	0.3603***	0.1489**	0.3291***	0.6193***
(0.0473)	(0.0649)	(0.0526)	(0.0922)	(0.1172)	
Observations	112	112	112	112	112
Countries	16	16	16	16	16
R-squared	0.765	0.858	0.621	0.834	0.495
Country FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: This table exhibits the estimation results of Eq. (2). Robust standard errors in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10%, respectively.

Table 9
The Impact of Cumulative Domestic and Cross-border M&As on Financial Development after the Global Financial Crisis

Variables	(1)	(2)	(3)	(4)	(5)
Financial Development Index					
Cumulative M&As	-0.0003 (0.0018)	0.0003 (0.0018)	-0.0041*** (0.0011)	0.0014 (0.0044)	0.0055 (0.0034)
Bank Z-score (t-1)	0.0011 (0.0023)	0.0013 (0.0030)	-0.0009 (0.0026)	0.0009 (0.0058)	0.0052 (0.0058)
Bank Concentration (t-1)	-0.0008 (0.0005)	-0.0004 (0.0008)	-0.0004 (0.0006)	-0.0015 (0.0013)	0.0017 (0.0011)
Real GDP Growth (t-1)	-0.0020** (0.0007)	-0.0014 (0.0011)	-0.0025** (0.0010)	-0.0034 (0.0025)	0.0040** (0.0018)
Inflation (t-1)	-0.0001 (0.0006)	-0.0001 (0.0010)	-0.0002 (0.0008)	0.0006 (0.0020)	-0.0008 (0.0012)
Governance Index (t-1)	0.0957** (0.0439)	-0.0086 (0.0474)	0.0702* (0.0360)	-0.1561* (0.0850)	0.1108 (0.1039)
Constant	0.3526*** (0.0382)	0.5276*** (0.0603)	0.2880*** (0.0423)	0.7339*** (0.0993)	0.3738*** (0.0785)
Observations	175	175	175	175	175
Countries	16	16	16	16	16
R-squared	0.257	0.0594	0.278	0.279	0.338
Country FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: This table exhibits the estimation results of Eq. (2). Robust standard errors in parentheses.

***, **, and * denote statistical significance at the 1%, 5% and 10%, respectively.

For all other proxies of financial development, the estimated coefficients lack statistical significance. However, the cumulative impact of the cross-border M&As is positive and significant (Table A8 from the Appendix) highlighting their important role in the Central and Eastern Europe in enhancing financial development. The results are in line with the conclusions of the study of Weiß *et al.* (2014), which on a basis of a sample of M&As materialized between 1991 and 2009 shows the direct relationship between systemic risk and the level of market fragmentation. All the variations of the model are consistent with the competition-fragility hypothesis, the acceleration of the banking concentration slowing down the financial development process, mainly due to the increase in the information asymmetry. The 2008 episode highlighted a few internal problems, both from a financial perspective (premium and bonuses increase or manipulation of the stock market) and personal (status, hubris) which unfortunately could also influence the causes of M&As. In the context of the financial crisis, the entities were forced to prioritize the cost optimization, many of the branches being closed, the workforce reduced and consumer access diminished. The development of the financial products remained in the background for two reasons: first, the demand for them decreased in the context of deterioration of the investment budget, and second due to the low level of profitability associated with them. If we analyze the database, we shall conclude that after 2008 the majority of the transactions have been domestic, being aligned with Berger *et al.*'s (2000) findings of the home field hypothesis. We can conclude

by stating the negative effects the financial crisis has projected over the M&A trend, but in the end the transactions remained a mechanism of restoring the balance.

5. Conclusions

This study investigates how bank mergers and acquisitions influence the profitability and performance of the financial systems in Central and Eastern European countries during 2000-2018 period. We document a negative and significant association between bank M&As and financial development in the short-run, whereas the impact turns out to be beneficial in the long-run, especially in the case of cross-border transactions. Moreover, the analysis provides additional evidence of the importance of cumulative cross-border transactions before and after the global financial crisis.

This approach was analyzed by the literature in terms of performance indicators before and after the restructuring operation, the improvements being also visible on a longer period (Resti, 1998; Correa 2009; Akpan *et al.*, 2018). During the transition period, there are often massive layoffs, closure of offices and branches or streamline of the systems and software which led to customer dissatisfaction and a deterioration of the performance indicators. These findings are opposite to the ones of Mantravadi and Reddy (2008) who conclude that the transition or post-merger period attracts positive movements in the market. Capturing the effects separately for each typology, the cross-border M&As are enhancing the development of the banking system in all its dimensions: operational through economies of scale/scope and financial by increasing profitability. These are in line with the papers of Eccles *et al.* (1999) or Hubbard and Purcell (2001), who consider that the main objective of M&As is to gain new territories and a greater exposure, which will transfer into a higher number of customers, so in the end into higher gains for the shareholders. However, our research shows that these benefits can only be achieved on medium and long term, once the transition period has been successfully concluded. In addition to the further capital flow, these operations bring the experience and the know-how that is necessary for the development and the alignment of financial services to the more mature markets. The impact of the financial crisis affected the occurrence and dynamics of transactions, while remaining an instrument of financial recovery and efficiency boost (confirmed by the significance of the control variable rather than materialization of M&As).

Taking into consideration the emergence of the markets, the bank mergers and acquisitions speeded up the transition from centrally-planned to an open market and aligned them to the European Union vision. This study has achieved its initial objectives, capturing the essence of the M&As along with the positive impact they have on the banking system. However, the materialization of these operations is not enough, the regulatory framework and the national policies being real drivers for assuring innovation and growth at a sustainable pace. Furthermore, the Central and Eastern European market is very promising, being the focus of many foreign investors. A limitation could be the typology of the analyzed banks as it would be interesting to see how the result could change if we added some other types of financial institutions.

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