

Erasmus University Rotterdam

Jim Laurens Kreiken

Financial Integration in the EU

An empirical analysis of the associated economic benefits



Candidate no. 359627
Erasmus School of Economics
Financial Economics
Supervisor: Dr. T. Eisert

This thesis is submitted for the degree of
MSc Economic & Business

May 2017

Abstract

This thesis examines whether and to what extent member states have economically benefited from the financial integration of the European Union in the past 20 years. Three pillars are used to measure capital market integration in the EU: the integration of equity capital markets, debt capital markets and corporate activities, measured as cross-border M&A, all relying on the Law of One Price. By means of econometric techniques as used for the well-known Solow-growth model, Ordinary Least Squares regressions on beta convergence of these pillars determine the development of financial integration in the EU and EMU countries. Based on the same data to answer the main question in this research: ‘What are the economic benefits associated with financial integration for EU state-members?’, OLS regressions are constructed to account for ECM, DCM and M&A activity integration, with CPI, Unemployment rates, GDP growth and Unit labor costs as dependent variables.

I investigate whether there is beta-convergence in EU financial integration, based on methodology similar to the Solow-growth model. Although no strong evidence is found for convergence of capital markets integration, I demonstrate that the economic benefits of financial integration differ amongst different capital markets integration and that countries experience a different level of benefits based on its financial development, EMU membership, size or geography, .

JEL classification: F21, F36, F43, F45, G31, G38,

Keywords: Financial Integration, Law of one Price, European Union, European Monetary Union, Beta-Convergence, OLS-regression, Capital Markets Integration, Solow-Growth model

Copyright Statement

The author has copyright of this thesis, which represents part of the author’s study program while at the Erasmus School of Economics (ESE). The views stated therein are those of the author and not necessarily those of the ESE.

Non-plagiarism Statement

By submitting this thesis the author declares to have written this thesis completely by himself, and not to have used sources other than the ones mentioned. All sources used, quotes and citations that were literally taken from publications, or that were in close accordance with the meaning of those publications, are indicated as such.

Table of Contents

Abstract	2
1. Introduction	4
1.2 Introduction to the research question	4
1.3 Problem statement and research question.....	6
2. Theoretical Framework	7
2.1 Defining financial integration.....	7
2.2 Development of EU policy on financial markets	8
2.3 Literature review	11
2.3.1 Rationale for and effects of European financial integration.....	11
2.5 Research Question and Hypothesis statements	15
3. Data & Methodology	17
3.1 Data Description.....	17
3.1.1 Equity Capital Markets.....	18
3.1.2 Debt capital markets	19
3.1.3 International financial integration of corporate activities.....	19
3.2 Methodology description.....	20
3.2.1 Effects of European policy and events on integration	20
3.2.1. The effect of financial integration on economic factors.....	21
4. Results & Discussion.....	24
4.1 Financial integration development	24
4.1.2 Beta Convergence of financial integration	27
4.2 Financial integration effects on economic indicators	29
4.2.1 Results: effects on GDP Growth	29
4.2.3 Results: Effects on CPI.....	31
4.2.5 Results: Effects on Unemployment rate	32
4.2.7 Results: Effects on Unit labor costs.....	33
5. Summary	34
5.1 Summary	34
5.2 Relevance of research.....	35
5.2.1 Academic.....	35
5.2.2 Practical	36
5.3 Limitations.....	36
5.4 Future research	37
5.5 Acknowledgements	37
6. Appendix A.	38
7. Bibliography.....	57

1. Introduction

This thesis is structured as follows: first, an introduction to the subject and the emergence of the main research question is given as well as its relevancy to academics and research. Thereafter, the theoretical framework is given, addressing the most important definitions and assumptions in this field of research. In this framework, the hypothesis will be introduced based on the underlying rationale. Thirdly, the data and sources used, as well as the methodologies used to test the hypothesis throughout this research are discussed. Following the results, this thesis ends with a conclusion and discussion.

1.2 Introduction to the research question

It is common knowledge that within the European Union there is a considerable diversity in the degree of economic development and integration of financial markets. While free capital mobility has been a reality in the EU since the 80s, there was persistent exchange rate risk. The introduction of the Euro currency in 1999 was a major step in European financial integration. Since then, the single currency is used in 19 countries and is widely used by more than 340 million citizens. The main arguments behind this single currency were its contribution to the elimination of currency exchange costs, facilitating international trade and strengthening the EU's competitive position in the world (Drabek & Brada, 1998). Moreover, the single currency is believed to support the conduct of a single monetary policy, which safeguards financial stability and economic growth. For the EMU members it meant full integration of the unsecured overnight loan market. While 9 remaining EU members have kept their own currency, they are still prone to several fundamental EU policies, such as the independence of their national central banks and the obligation to discuss and coordinate their economic and monetary policies with the other EU-members (European Commission, 2016). Now, nearly 18 years later, criticism on the EU and Eurozone is increasing rapidly. Populist political parties throughout Europe are gaining ground and intend to have referenda on leaving the European Union as soon as possible, based on the belief that the EU has failed to succeed in its objectives and neglected popular interests. This study wants to provide relevant insights in the debate on EMU membership and aims to assess whether financial integration has taken place, whether it impacts economic development and to what extent. In the UK, discussions already led to the Brexit, whilst in countries such as the Netherlands or France, Euro-sceptic political parties have serious probabilities of winning national elections. Interesting is the response of capital markets. The political uncertainty leading to and following the Brexit-referendum, resulted in declining markets and high volatility. While the German DAX and French CAC index fell nearly 8%, Italian and Spanish indices lost 12% of their market values. Britain's largest banks took the largest battering, losing nearly USD 100 billion following the Brexit in a single day (Reuters, 2016). One could easily consider these numbers as an indicator that by equity investors, EU membership for the UK (or at least stability in European financial markets), is highly valued. However, the main argument by Eurosceptics to clarify

this train of thought is current uncertainty and that on a long run the UK is better off, determining its own future and will gain massive growth and cost reductions by doing so.

Nonetheless, the importance of European financial integration has increasingly become a major topic in the European debate. The most important question, at least from an economist's view, therefore is how steps towards financial integration in Europe have developed so far and if it indeed should be expanded. According to EU-policymakers, financial integration leads to more stable prices for consumers, improved economic stability and growth and a stronger presence for the EU in the global economy (Guiso, et al., 2004). Of course, many of these are interconnected, whilst most can be considered to improve economic growth. Have EU financial policy introductions or economic events influenced any financial integration and if so, what are the economic effects throughout Europe, how do they differ?

The most crucial policy-induced innovation since the fall of Bretton-Woods was most definitely the introduction of a European Monetary Union by 15 EU members, with a single currency. Since then however, the largest beating the EU has experienced as an institution, is probably the outcome of the Brexit vote. The fact that one of the EU's earliest and most wealthy members has chosen to leave the EU and the process towards further integration of Europe, is the foremost reason that developments should be researched and evaluated based on how valuable financial integration actually is. To research financial integration, one should first understand its definition. Complete financial integration occurs under the law of one price. When this condition holds in financial markets, similar assets or financial instruments would generate the same returns with an identical cost of capital and same risk, irrespective of the asset's domestic base. Given this definition, financial market integration can be measured by comparing the returns of assets that are issued in different countries, with similar characteristics. Another approach might be to analyze corporate decisions with respect to expansion in Europe. With more integrated markets, barriers for cross border activities should be smaller and lead to more cross-border M&A activity.

This thesis analyses the developments in financial integration of the Eurozone on EU members states' economic growth by improved capital allocation and smaller spreads in debt markets. Financial integration levels are measured based on debt and equity markets indicators, as well as corporate decision making in cross-border activity in terms of M&A activity. In other words, financial integration indicators are convergence levels of stock market indices, interbank lending rates or cross border M&A activity. The definitions used and the rationale for EU financial integration are discussed in detail in the theoretical framework while the framework for the results of this research is elaborated upon in the data & methodology section. This thesis employs a range of different measures of financial integration to better represent its multidimensional characteristics. The focus is entirely on financial integration of the European Union and the different effects for individual countries based on EMU membership, economy size or geographical factors. A regression based on time series data is constructed to analyze the effect

of financial convergence has a significant effect on EU members' economic prosperity pillars. For instance, by comparing the effects of integration for EMU and non-EMU EU members, determined is whether the introduction of a single currency and central bank has increased the convergence effect on growth.

The thesis framework is divided in a theoretical background, discussing the definition used of financial integration in detail, its developments in the past two decades, its (dis)advantages, the underlying rationale and relevant previous research. The data & methodology section discussed the building bricks on the data used and structure used to perform statistical analysis. Finally, the main findings are discussed in the results section, which is followed by an overall conclusion.

1.3 Problem statement and research question

As described under section 1.1. there are numerous reasons to measure economic integration in Europe and its effects on growth. In this research the international financial integration of Europe is measured based on the law of one price. Thereafter, determined is what events have influenced developments in financial integration. Lastly, do certain identified developments (think of policy regime changes, currency intro, in financial integration lead to more economic growth? The problem statement boils down to the following research question:

“What are the economic benefits associated with financial integration for EU state-members?”

The following chapter discusses which definition for financial integration and which assumptions are used throughout this research to perform a regression analysis and how to construct its input. All reason throughout this chapter is based on previous literature on financial integration and various related subjects.

2. Theoretical Framework

2.1 Defining financial integration

To analyze the impact of financial integration, there should be a deep understanding of its definition and range of related aspects. Financial integration could partially be economic integration in general, which captures integration on a broad basis. For example, analyzing a country's sum of intra-European imports and exports of goods as a percentage of the total GDP is purely economic or trade related. In this research, the focus is on financial integration only. Financial integration captures the efficiency and conjecture of financial markets directions' and accessibility amongst different countries. In this thesis, the 'Law of One Price' defines complete financial integration and should be considered the basic metric throughout this research (Isard, 1977). Throughout this thesis, the following definition is used for an entirely integrated European financial market: market is fully integrated if all its participants:

- 1) Financially operate under a single set of rules with respect to all financial instruments or services.
- 2) Have equal access to these available financial instruments or services
- 3) Are treated equally within this market.
- 4) All of them generate the same return on assets with the same characteristics and risk levels.

Thus, financial integration is defined as a situation within the EU in which financial instruments with the same risk and return trade at the same price, regardless of country specific effects.

The above definition embodies a complete transparent market under full competition, without any information asymmetry. In the EU, these conditions for financial integration have not been full met so far. Countries are still prone to their own policies, have different financial restrictions and operations and not all countries have the same currency. Due to cultural differences, language to name one, financial integration could be dependent on diminishing these frictions as well. In this research, however, financial integration is not about removing frictions that hamper allocation of capital, but rather about how financial integration cooperates with asymmetric aspects between countries. Also, the definition embodies no discrimination by financial intermediaries whatsoever. An example is a country that is indifferent between domestic and foreign investors but does have more restrictions for a foreign firm to list on a local exchange than for a domestic firm.

2.2 Development of EU policy on financial markets

An important step for financial development was the Maastricht treaty in 1992, which confirmed a ‘Single Market program’. This treaty, although the main objective remained price stability, stated a considerable amount of references to regulation and supervision to be carried out, after which the European Free Trade Association was founded, which implied that EU members, with the exception of Switzerland, accepted a common European banking legislation. The single market freedoms created for the different forms of financial services have been embedded in a variety of directives. Some as mentioned above: A single banking license in the EU, mutual recognition and the formation of common regulations, which allow financial institutions to access capital markets and removes administrative burdens, expanding markets playing-fields. (Lannoo, 2016).

It is also the Maastricht treaty and the Free Trade Association that led to the origination of a European Monetary Union (EMU) (Gaspar, et al., 2002). Yet in May 1999, the EU launched the Financial Services Action Plan, which consists of a large series of initiatives taken to ensure the full integration of banking and capital markets by the year 2005. Four main goals were written: A single EU wholesale market, open retail banking and insurance markets, the development of common regulation and supervision financial integration. A little later in time, the Euro as a single currency for 15 EU countries was introduced to fundamentally change the competitive structure of the corporate bond and equity markets, by effacing home currencies, leaving mostly relationship banking and financial expertise as financial institutions’ foremost competitive advantages. All of these policy introductions were implemented for more open markets and increased financial integration.

The first major test for the strength and benefits of the EMU is the financial crisis in 2007 reaching its peak at 15 September 2008 with the default of Lehman Brothers (Harrison, 2008). Due to global integration of markets, it did not take long until the crisis inflicted European markets. These beliefs led to the broadening of regulations and a stronger focus to create a ‘single rulebook’ to create a safer and sounder financial sector for the single market. Prior to the financial crisis, many elements of financial markets and processes were not regulated at European but at national legislation. Examples of these elements are supervision and regulation on rating agencies, hedge funds, or derivative markets, by which excessive risk taking got new restrictions. Following the financial crisis, under EU legislation, complex adaptations have made, to for an example, coverage banking or certain trading or investment activities. An example is a change in the regulations of assets traded similarly to equity markets. Regulations have been tightened for bond and commodity markets and the high frequency or algorithmic trading and data vendors have gained numerous regulations as well (Lannoo, 2016).

After the recession, the government debt crisis submerged in Europe, following the severe damage that had been done to European banks, writing off large amounts of debt and losing a lot of equity value. Because of the interdependence of EU countries, the EU decided that an even deeper integration of the

banking system was needed, because as German chancellor Merkel put it: ‘if the euro fails then Europe fails’, and her finance minister, Schäuble, has also claimed that ‘We must defend this common European currency as a whole. By defending it we defend at the same time the European project. Exit from the Eurozone would put future cooperation and financial integration at risk and dampen the credibility of the European Union, reducing its influence over European democratic consolidation in newer member states’ (Aslett & Caporaso, 2016). Maudos & de Guevara argue however, that until the outbreak of the crisis, financial integration indeed improved financial development in the EU, but that the degree of integration has had a negative impact on financial development and growth during the crisis and following Eurozone crisis. In other words, the integration of Europe increased systemic risks throughout Europe, for which the credit crunch in certain countries impacted all. Therefore the European Commission implemented the single Banking Union, by which all EU institutions agreed to establish a single supervisory mechanism and a single resolution mechanism for financial institutions. While this banking union applies to all countries in the EMU, non-EMU countries can also join. The UK does not participate.

Another major game changer has been implemented of which some believe that the introduction of this program changed the dynamics of European financial markets completely. To intervene in the sovereign debt crisis in Europe, the ECB came up with an unconventional policy: the Outright Monetary Transactions. The OMT, or bond-buying program, was announced first by the ECB in September 2012. The program consists of the ECB offering to purchase Eurozone countries’ short-term bonds in secondary markets, to decrease market interest rates and stimulate investments. Furthermore, the OMT program should lower interest rates in countries, where these are high due to Euroscepticism and speculations of leaving the Euro (FT, 2016). The specific details of the introduction of the OMT were quite remarkable: ECB president Mario Draghi highlighting the fact that the ECB will do ‘whatever it takes’ to strengthen and save the Euro literally interpreted, meant the following: the size of the program is entirely unlimited. Also, he clarified that there is no seniority in bonds involved, which basically means there should not be any concern by investors that their own holding will become subordinate of peripheral bonds. Since its introduction, many have criticized the OMT. The ‘Draghi Put’ as the program is known, reduced interest rates for Spain and Italy quite soon after its introduction and many consider it the last resort that saved the Eurozone from worse (Gopinath, 2014). Some however, argue that the introduction was too late or that these form of interventions will lead to inflation, which currently is untrue, given the fact that financial institutions have remained risk-averse (also due to the recently introduced Basel 3 accords, which introduced higher solvency II ratios (Dunkley, 2016)) and have not started to increasingly grant credit to companies or households. This has led to lower spending levels and more savings and thus lower inflation levels. Banks are piling up the liquidity and no major, wide action has been seen so far. There hardly is more bank credit available. On the contrary, because this increase in savings and decrease in spending has resulted in the risk of potential deflation (FT, 2016)

(Grauwe, 2012); others believe that higher growth levels throughout Europe increased due to the low oil price and not as a result of the OMT program (De Vries & Van Marle, 2015). But foremost, the bond purchases do not change the fundamental issue of low investments levels that certain countries face and increasing their money supply does not solve these. Nevertheless, most agree that the interventions are necessary to prevent the situation from becoming worse, but that more reforms should be initiated (Grauwe, 2012). In the light of financial integration, the introduction of the OMT program resulted in extremely low interest rates. While quantitative easing has been pushing liquidity to banks, they have become prone to the new restrictions by the Basel agreements. Many banks throughout Europe have been focusing on managing their capital structures since then, and have been pushing out leverage capital. Meanwhile, to cope with these new solvency ratios, the QE lead to a massive decrease in interest rates and sometimes even negative overnight rates as banks need to ‘get rid’ of this leverage. Interestingly however, by pushing rates to zero, it might have decreased spreads between country’s debt markets, inducing that the ECB programs have supported financial integration in debt markets (by decreasing spreads).

Another challenge for European Integration in general, is the current upcoming wave of Eurosceptics gaining ground. At the 25th of May in 2014 European parliamentary elections saw a big anti-establishment vote in favour of Eurosceptic parties, taking around 25% of seats. The most important critique for these sceptics is whether the benefits of European integration outweigh the costs and possibly the loss of national identity. As the main question in this research is, whether financial integration benefits countries, one should understand if Euroscepticism might affect European financial markets and further development. Logically, one could argue that during times of multiple referenda on the EU throughout Europe, financial markets are more hesitant to further develop cross-border activities, while outcomes are highly volatile. The Brexit in June 2016 could be seen as the foremost reason to analyse Euroscepticism and the potential effects of polarization in Europe. After 52% of the British people voted to leave the EU, volatility levels increased and global stock markets tumbled. The British sterling decreased to \$1.30, the lowest since 1985, and especially banks throughout Europe lost enormous amounts in equity (Charlotte, 2016). Many banks already announced their willingness to move EU headquarters elsewhere following the Brexit as the UK might lose its financial passport rights, allowing them to provide their services throughout the single European market (Arnold & Fleming, 2015). As a member of the EU, countries enjoy full access to the European Single market, which guarantees the free movements of goods, services, capital, and labor within the European Economic Area. In that case movement of capital around Europe would become far costlier (HM Treasury, 2016). Based on these developments, which are believed to benefit trade and reduce risk and with financial services accounting for 8 percent of the UK’s GDP, it is hard to understand why some voted to leave (at least with respect to economic terms). It is however still uncertain under what conditions the UK will leave the EU, not to mention the amount of years of negotiations the exit will take. Nonetheless, the vote to leave

strengthened the wave of Euroscepticism throughout Europe, with political parties in the Netherlands, France, Italy, Greece, Sweden, and Denmark gaining ground (NEWS 24, 2016).

2.3 Literature review

2.3.1 Rationale for and effects of European financial integration

Various academics analysed the benefits and disadvantages of financial integration. Economic growth may come from the following two channels: growth in the number of factors of production or increases in the efficiency with which those factors are used. In other words, more efficient finance leads to increased economic growth (Gregorio, 1999). Financial integration has a dual effect on economic growth. On the one hand, the development of domestic financial markets may enhance the efficiency of capital accumulation. On the other hand, financial intermediation may contribute to raise the savings rate and, thus, the investment rate (Goldschmidt, 1969).

In general, European policy makers define three benefits of financial integration: the development of more risk sharing and risk diversification, more efficient allocation of capital amongst investment opportunities and the potential for higher growth (Baele, et al., 2004). Empirically, this is underlined by numerous academics. With respect to risk sharing, academics show support for the idea that higher financial integration leads to less symmetric fluctuations in capital markets (kalemli-Ozcan, et al., 2001). The view that greater financial integration leads to better allocation of capital is generally accepted amongst research. Elimination of barriers to trading, clearing houses or cross-border mergers and acquisitions allow corporations to participate in the most efficient capital accumulation processes and therefore spur investments, by decreasing finance and transaction costs (Baele, et al., 2004). The most research of course, which is intertwined with these discussed benefits of financial integration, is on economic growth. Research for financial integrations' implications on growth is very diverse and takes a number of directions and methodologies.

For instance, academics find that integration of financial markets increases the supply of (cheaper) finance in the less financially developed countries, by enabling them to access more distant financial markets, leading to more capital accumulation and economic growth. The main reason mentioned for this effect, is that by increased competition, markets will become more efficient and sophisticated (Masten, et al., 2008). Accessibility by less developed countries to foreign markets forces financial intermediaries to reduce the cost of their services to firms and consumers in these countries, leading to the expansion of local financial markets. These better credit conditions stimulate investments and are expected to lead to higher economic growth. This is in accordance with Beck et al. (2000), who find

evidence that cheaper financial intermediation has a positive impact on productivity growth, which increases overall GDP growth.

Growth related developments of financial integration for debt markets are quite similar for equity markets. As these become more integrated, less developed countries can more easily access foreign stock exchanges, benefit a lower cost of capital, or firms might choose to list their shares abroad attracting specific investors than could locally be targeted. Thus, markets would become more liquid with a larger and better informed investor base, improving corporate governance, leading to a lower equity cost of capital (Pagano et al. 2001). Claessens et al. (2002) however, argue that by listing shares abroad, growth and turnover is transferred to the foreign country rather than to the less developed country. This phenomenon of countries ‘exiting’ their domestic country by accessing foreign equity markets could therefore also be considered a negative effect for the less developed country’s growth. Because of this clear disadvantage, in case of large differences in country’s sophistication of financial markets, one might not be able to conclude on the effects of financial integration on equity markets. It is likely however, that the advantages for the EU in total outweigh these disadvantages that financial integration is believed to bring. Other research that involves the financial deepness of countries indicates that persistent global financial imbalances between countries do not have to lead to financial recessions. Instead, this could be due to the outcome of financial integration, or when countries differ in how sophisticated their financial markets are. Moreover, countries with more developed financial markets accumulate foreign liabilities in a long-lasting process, leading to unique compositions of foreign portfolios, or as Mendoza et al. (2007) emphasize: ‘Countries with negative net foreign asset positions maintain positive net holdings of non-diversifiable equity and FDI.’ This phenomenon shows that more financially-developed countries abstract and are more able to capture the potential impact of globalization on financial development. These findings are based on the facts, that the wealthiest countries are the most financially developed, whereas most of these countries, such as the USA, declined their net foreign asset positions in the early 1980s, which occurred along with the liberalization of international capital markets. Or in short: financial integration induces more financially developed countries to reduce savings and accumulate a large stock of net foreign liabilities in a long and gradual process, investing in high-return foreign risky assets, leading to positive returns, even if the net foreign asset position is negative. Thus, via financial integration, a developed country such as the USA, with a large negative net foreign asset position, does not immediately lead to a worldwide crisis. This does not necessarily mean that less developed countries do not benefit from financial integration, unless financial globalization does not result in financial developments in less developed countries (Mendoza, et al., 2007).

Political or Geographic country characteristics can influence financial integration developments or benefits as well. For instance, Western Europe could be experiencing a greater advantage based on its politically more integrated form. More involved and politically integrated countries may experience more growth and benefits from financial integration than ‘emerging’ or South/Eastern European

countries (Friedrich, et al., 2010). According to Peschel (1992), the effects of Western European integration can be judged by development trends in the past. Therefore, he considers it merely a spatial or geographical effect. In addition, the accessibility to other markets could lead to an increased number of mergers and acquisitions to penetrate markets even faster, increasing returns to scale, which could be associated with reductions in the cost of intermediation. On the other hand, one could argue that financial integration forces less developed countries to improve their financial markets with respect to regulation, supervision or accounting standards. These features are believed to increase stability and may stimulate investment as well (Guiso, et al., 2004).

Based on the above, with respect to growth, it seems that underdeveloped countries benefit from financial integration. They enjoy lower finance costs and increased opportunities, while the developed countries mostly gain an increase market base to sell their financial products. A common opinion by Eurosceptics is that countries with well-developed financial markets do not need additional financial integration for to become more efficient. In fact, integration might lead to systemic risk erupting from less developed countries on the edge of sovereign default (such as Greece).

On economic integration of Europe in general, lots of research can be found. The majority investigate the relation of institutions with respect to GDP growth by introducing a dummy variable. Henrekson et al. (1997) investigate 22 OECD countries in the time from 1976 to 1985. They use this approach by incorporating a dummy for EU members to test whether the integration has a significant effect on growth. Their outcome shows evidence that indeed by integration Europe via the European Union, an increased annual growth of GDP comes forth. This research however, addresses full economic integration, whereas this thesis focusses on financial integration mostly. For that reason, more detailed and niche research should be taken in account, rather than research on economic integration in total.

The EU follows the rationale of greater transparency and increased competitiveness due to the effectiveness of the single market, more stable macro-economics and therefore increased investments. Early research however, finds little evidence on the impact of the EMU for example on economic output and growth. Barrel et al. (2008) analyzes the impact of the EU's above mentioned rationale on the drivers of growth. While they find little evidence, they conclude that the impact of the EMU on growth is positive and larger in the so-called core Euro Area countries: France, Germany, Italy, Belgium and the Netherlands.

Research shows that the most important drivers behind financial integration are the following: 1. Level of development: studies indicate that wealthier countries tend to be more integrated (Edison, et al., 2002). 2. Policy on capital controls: more liberal capital markets lead to more financial integration. This is generally considered as a prerequisite for financial integration (Prasad, et al., 2003). 3. Economic growth: some research indicates that countries with high growth have a positive effect on their capital outflows to emerging countries. This suggests a potential reversal relationship between international financial integration and economic growth (Vo & Daly, 2004). Institutional, legal and investment environment: To incentivize financial integration, the process should be coordinated in line with sound

and common legal pillars and in similar environments. For an example, to reach the law of one price, one should have similar tax systems and deductions across countries. This refers to the legal rights of creditors and shareholders, as well as applied corporate governance codes. Research finds that countries with inferior law enforcement or devious policies have narrower capital markets. Or: There is a close relationship between laws and the level of international financial integration (Anon., 1993). 5. Financial market development, financial system and banking system: To develop international financial integration transaction costs and information asymmetries should be as absent as possible. Henry (2000) finds evidence for a strong link between international financial integration and financial market development. In line with Vo & Daly (2007), Lane & Milesi-Ferriti (2003) use FDI and portfolio equity investments as their measurement. They find that indeed there is increased international financial integration, based on the aggregate sum of external assets and liabilities over aggregate GDP. A major pitfall however, is that the outcomes only show globally projected evidence on a small number of countries (Lane & Milesi-Ferretti, 2003). Edison et al. (2002), use a similar approach, analyzing the FDI and portfolio inflows and outflows as a share of GDP, to conclude that they are unable to reject the null hypothesis that international financial integration accelerates economic growth on a global level. Other indicators based on corporate policy could be the consolidation of banks and companies across geographic borders. A lesson can be taken from the integration of U.S. financial markets. A large boom of mergers & acquisitions took place between 1988 and 1997, after deregulations of regional expansion and the scope of banking activities and new policies with respect to free mobility of capital and banking supervision, whereas in Europe, M&A activities have taken place mainly within national boundaries, rather than across them (Buch, 2000). One could argue for that reason, that as European markets become more integrated (boosted by the EMU), one may also expect increased number of cross-border M&A activities relative to domestic M&A activity in Europe. Their results over the short period of 1997 – 2002 do not reveal overall that this activity has been more intense than domestic M&A activity (Adam, et al., 2002). This research however, might be a little too soon after the EMU introduction for a genuine conclusion.

With respect to integration of equity capital markets research is more diverse. Gregorio (1999) uses indicators based on the international capital asset pricing model. If international financial markets are perfectly integrated, there should be a constant ratio between excess return of an asset and the excess return of the benchmark portfolio. Or, the systemic risk only exists of sector-related risk, whereas country related risk is no longer present. Research shows that in the early 1990s considerable intra-regional linkages in equity markets have strengthened and that country-specific shocks that affect other countries dissipate much quicker than global shocks (Cashin, et al., 1995). Lastly, equity markets integration is in earlier research is analyzed by looking at the number of firms in a countries index with a foreign background. Claessens & Schmukler (2007) find that despite clear indicators for increased financial integration, only relatively few firms move along. The most firms that happen to seek equity finance abroad, are the ones from larger, more open and wealthy economies. This strengthens the

conclusions already mentioned above. Believed is, that integration in equity markets is slowed down due to country and firm characteristics, rather than the integration of financial markets (Claessens & Schmukler, 2007).

A lot of research focusses on the convergence of debt markets. Fernandez et al. (2007) argue that financial integration in Europe should affect the competition between markets and intermediaries and generate a convergence of both interest rates and margins among different countries. Based on the period of 1993-2001, they analyze the convergence of government debt yield, mortgage loans to households, consumer loans and long-term loans to enterprises. They find evidence that financial integration in debt markets is present, but unequal across Europe. This process is mostly based on the convergence in inflation. Also, the degree of integration in retail markets is lower compared to wholesale markets (de Guevara, et al., 2007). Gande and Parsley (2004) study the effect of sovereign credit rating changes of one country following a change in another country's sovereign credit rating during 1991 to 2000. Their findings comprise of significant spillover effects. In detail: Events leading to more negative ratings are associated with an increase in spreads. The opposite however does not occur; positive ratings do not have an effect. They conclude that countries only share systemic risk with respect to negative events.

Whereas most of the research focusses on plotting the chosen proxy's for financial integration to GDP growth, this research focusses on the economic effects of financial integration in wider sense. For this reason, economic factors such as employment growth are taken in consideration as well. Based on international portfolio equity investments and FDI, there is research by Gur (2015), which addresses financial dependence and employment growth to financial integration in general. He concludes that financial integration increases growth of employment relatively more in financially dependent industries.

In short, one can conclude that the literature review raises the following main questions: Does measuring financial integration based on the law of one price provide similar evidence? Does financial integration have different developments and effects for countries based on its financial development? Furthermore, does the elimination of exchange rate risks have a beneficial effect associated with financial integration? In the following section the corresponding hypotheses based on the literature review are stated.

2.5 Research Question and Hypothesis statements

Based on these findings in previous research, the empirical analysis in this thesis is expected to indicate that in the past 20 years there has been a significant development in financial integration throughout the EU, which led to a positive impact on GDP growth for these countries. Also, more financially integrated countries experience lower unemployment levels, lower inflation, higher housing prices and hourly wages. This means that the following empirical analysis should indicate the development of financial integration and that these developments show significant growth enhancing coefficients for the various

indications in financial integration. That is to say: integration in equity- and debt capital markets and an increase in cross-border corporate activities. First, this research analyzes whether the development of EU financial integration has been impacted by related events, earlier mentioned in the theoretical framework. In line with the theoretical framework, believed is that the introduction of the EMU led to the convergence of all integration pillars. The economic crisis diverged financial integration, the OMT increased integration of DCM markets and Euroscepticism led to divergence of all pillars. After analyzing the impact of these events, tested is whether over time the integration of these pillars have affected economic growth. The foremost tested hypothesis is formulated as follows:

Hypothesis 1 (H1). *Financial integration in the EU has beneficial economic effects*

Significant, growth enhancing indicators are evidence for a long-term effect of financial integration, considering the fact that the sample is substantial.

In addition, other hypotheses are tested. First of all, tested is, whether financial development in Europe has been affected by the discussed events, if financial integration is stronger within the EMU and whether the economic effects differ based on certain country characteristics. Or:

Hypothesis 2 (H2). *Financial integration development is affected by policy induced events*

This hypothesis is tested by analyzing beta convergence with respect to four crucial events in the past two decades with respect financial integration: The introduction of the EMU, which is believed to have increased the speed of convergence for its members. The financial crisis, which lead to the Eurozone debt crisis. The OMT by the ECB, which widely decreased interest rates throughout Europe and might have accelerated integration in debt markets. And lastly, Euroscepticism, which is believed to affect capital markets based on its higher volatility

Hypothesis 3 (H3). *EMU countries benefit more from financial integration in the EU*

Hypothesis 4 (H4). *Countries' benefits from financial integration in the EU differ based on its size, finance sector's value added or geographic location*

Tested is whether the effect of financial integration is smaller in more developed countries than in financially less developed countries and if smaller countries benefit relatively more from economic integration. Also, analyzed is whether financial integration higher benefits for EMU member-states.

3. Data & Methodology

This section describes the data & methods used, to test these hypotheses. Whether these hypotheses are rejected or not is described in the results section.

This study focuses on 22 of today's EU member states between 1997Q1 and 2016Q3. This period captures various introductions of new EU policy and a timeframe large enough to perform statistical analysis. Sixteen states were already members of the EU in 1997 after which 12 others followed within the examination period. The specific 22 EU members incorporated in this research are also members of the OECD, whose database features extensive economic data on these countries on a quarterly basis. Based on the similarity of incorporated countries, the size and financial sophistication with the non OECD and thus omitted countries: Cyprus, Malta, Bulgaria, Croatia and Lithuania, (Late introduction of market indices, low trading volumes and incomplete government bond data), the outcome of this research omitting these countries from the research is assumed not to influence the outcome of this research. The incorporated countries can be found in table 1 in appendix A.

This study tries to investigate financial integration; unfortunately, there is not a single well defined measure for economic integration. But, as already discussed in the previous section, there is a wide range of possibilities to achieve a good proxy. The proxies used in this empirical analysis will be discussed in the first part of this section. Most of the indicators are financial data whilst others are based on corporate activity. Taken together these different proxies should paint a very clear picture of the level and development of European regional financial integration in three different markets. The level and development of integration in Europe will be presented in the second part of this section.

3.1 Data Description

The data necessary to measure financial integration and to quantify effects on economic growth factors are taken from different sources. The incorporated economic growth factors in this research are determined to be GDP growth, unemployment rates, inflation rates, real housing prices and the unit labor costs per hour. This wide range of economic growth pillars are chosen since together they represent economic growth in terms of purchasing power, value of assets, growth of the number of jobs as well as purely GDP growth. The data for real GDP per capita per quarter a year are taken from the World Development Indicators (WDI) of the World Bank and reflect the overall economic growth of a country in terms of output. The quarterly data used for the assessing the unemployment rate and CPI indices per country, are derived from the OECD database. The CPI or inflation is a good indicator for economic growth as it measures the erosion of living standards. The unit labor costs are incorporated as an independent variable as it represents a country's competitiveness in production. Unit labor costs are defined as the average cost of labor per unit of output produced. The quarterly data on inflation for the

consumer price indices, real housing prices and unit labor costs per hour are derived from the OECD database as well. In this research, these independent variables are all indicators for prosperity, while they have different characteristics. For example, inflation levels seem to benefit countries most when between 0-2%, to avoid deflation but still cause stability. The lower the unit labor costs, the more productive a country is believed to be. Unemployment rates and GDP growth do not need an explanation.

To assess the effect of financial integration by EMU membership a dummy is incorporated with the value of 1 for country members of the European Monetary Union and 0 for EU countries with their own currency. A dummy is incorporated based on its geographical position, 1 for northern countries, 0 for southern countries. The dummies incorporated for a country's size and financial development are constructed the same way. The size of a country is determined to be large when its average GDP over the past 20 years exceeds 1 trillion Euros. The forthcoming countries can be found in table 4 in appendix A. Whether a country is considered financially developed is based on the value added by the financial services sector. This value added breaks down the value added by this sector and is divided by the total value added. The forthcoming countries that are considered financially developed can be found in table 3 in appendix A.

The following are proxies used to measure financial integration and are assessed to analyze its effect on GDP growth: the financial integration of equity capital markets, of debt capital markets and corporate activities throughout the EU in terms of M&A and stock listings. These proxies are discussed in detail:

3.1.1 Equity Capital Markets

The incorporated proxy for financial market integration with respect to Equity Capital Markets in Europe is based on stock market returns. In this research, the correlation between a country's main national stock index and the average of all EU members' stock indices is calculated. The higher this correlation level is, the more in line a country's equity markets move with other EU countries' stock markets. In other words, by capturing the correlation between market indices, by filtering out fixed effects one can determine if both react similar to exogenous or macro-economic shocks. The returns on these stock indices are derived from the Bloomberg Data terminal. This measurement is calculated as mentioned in equation (1):

$$Equity\ Markets\ Integration_{i,t} = \frac{\frac{1}{j}[\sum_m^j (r_{i,t,m} - \bar{r}_{i,t}) * (a_{t,m} - \bar{a}_t)]}{\sqrt{\frac{1}{j} \sum_m^j (r_{i,t,m} - r_{i,t})^2} * \sqrt{\frac{1}{j} \sum_m^j (a_{i,t,m} - a_{i,t})^2}} \quad (1)$$

With $r_{i,t,m}$ as the equity market return in country i, year t, quarter q and week m. $\bar{r}_{i,t}$ is the average weekly equity market returns in country i in year t and quarter q. The $a_{t,m}$ part reflects the average

equity market return in quarter t in week m over all countries. \bar{a}_t is the average equity market return in year t and quarter q over all countries.

3.1.2 Debt capital markets

To determine the financial integration of credit in the EU, the change in spreads between interest rates is analyzed. These indicators have several advantages. They have readily available historic data over the sample period and can be compared across all EU countries. In this research, short as well as long term DCM markets are incorporated, as both have their own characteristics due to their own risk set. The analyzed interest rates in this research are the 3-month interbank lending rate and the 10-year government bonds yield.

$$\text{Short Term Debt Markets Integration} = \Delta(\text{int.bankrate } 3m_{i,qt} - \text{int.bankrate } 3m_{G,qt}) \quad (2)$$

$$\text{Long Term Debt Markets Integration} = \Delta(\text{Gov. Bond } 10\text{yrs}_{i,qt} - \text{Gov. Bonds } 10\text{yrs}_{G,qt}) \quad (3)$$

Formula (2) show the change in the spread between the 3 month inter banking rate of country i in quarter and year qt and the 3 month inter banking rate of Germany G in quarter and year qt. Formula (3) is similar to formula (2) but is based on 10-year government bond yields.

3.1.3 International financial integration of corporate activities

For the measurement of corporate choices integration, the assumption is made that more cross border M&A, IPOs or dual listings within Europe clarifies more financial integration. Because, as described in the theoretical framework, under complete financial integration, one would be indifferent whether investment opportunities are domestic or cross-border, or in other words: increased financial integration would mean an increase in cross border M&A relative to total M&A. As the amount of (cross-border) listings in certain countries is often zero, the proxy will be based on M&A activities only. The proxy for this phenomenon is as follows:

Which consists of the total value of cross-border M&A in month m of country i divided by the total value of M&A based in country i. The closer this ratio is to 1, the higher is the level of financial integration. The data used to analyze M&A activity values, is derived from ZEPHYR:

$$\text{Integration via Cross - Border M\&A} = \frac{\sum_{tq}^i \text{Cross-Border M\&A}}{\sum_{tq}^i \text{M\&A}} \quad (4)$$

In which $\sum_{tq}^i \text{Cross - Border M\&A}$ represents the total value of M&A deals which have been cross-border for country i in year t and quarter q. This is divided by the total M&A value for the same country and period.

3.2 Methodology description

3.2.1 Effects of European policy and events on integration

To analyze whether financial integration affects policy introductions or events within the EU, a regression is structured to analyze how these rates have developed over time. This is called beta-convergence. In this research convergence of financial integration is defined as a situation in which long-run forecasts of output differences tend to move towards the law of one price. For debt capital markets, this means that convergence takes place when average spreads in Europe tend to move to zero. For ECM integration, which is measured as a correlation level between 0 and 1, convergence takes place when ECM markets' correlation tend to move towards 1. The same accounts for Cross-border M&A activities, which is determined to be fully integration under a ratio of close to 1. Beta convergence is commonly known for its application to measure the speed of economic growth, for instance in the Solow-Swan growth model. In the Solow-Swan growth model, long-run economic growth is explained by looking at capital accumulation, labor, population growth or increases in productivity. In this research, attempted is to use the methodology, adding dummies to test whether financial integration has been affected by certain events and whether this change is different for EMU members. In short, the methodology tests whether convergence of financial integration takes place by looking at beta convergence. The methodology used here is slightly different, not regressing the average growth rate of on its initial level. In accordance with beta convergence methodologies used by Sonderman (2012) and Adam et al. (2002) panel unit root tests are used and believed to be most suitable. These can be used whenever the convergence process between more countries is considered. Here, the panel unit root tests build on the assumption of cross-sectional independence, again, based on the law of one price. The methodology used to measure beta convergence generally involves the following equation:

$$\Delta i_{i,t} = \alpha + \beta i_{i,t-1} + \varepsilon_{i,t} \quad (5)$$

The regression basically estimates to what extent the growth of i depends on the lagged level of i : $\Delta i_{i,t}$ is the growth rate of i , $i_{i,t}$ the level of i and $\varepsilon_{i,t}$ is the error term. In case of DCM markets, where a smaller spread indicates more financial integration, a negative relationship between the growth rate $\Delta i_{i,t}$ and the initial level of i ($i_{i,t-1}$), or in other words, when the β is significant and negative, is the sign of a convergence process. Furthermore, the estimated value of β indicates the rate at which speed the convergence takes place (Monfort & Phillipe, 2008). For this reason, the methodology is very suitable to check whether certain events have changed the convergence of financial integration amongst different financial integration measures.

The regressions (2) will include dummies based on the above discussed events: The introduction of the Euro, the crisis in 2008, the OMT and the Euroscepticism establishment. Exact dates and events

incorporated can be found in the appendix. With these events incorporated, the regressions constructed will take the following form (in this example with the EMU introduction).

$$\Delta i_{c,qt} = \alpha_{c,qt} + \beta_{1pre-emu} Dummy_{i_{c,q-1t}} + \beta_{2post-emu} Dummy_{i_{c,q-1t}} + \varepsilon_{c,qt} \quad (6)$$

The dependent variable $\Delta i_{c,qt}$ denotes either the change in the measures for financial integration in debt markets, equity markets, corporate activity, and consumer level, where c and qt denote the country and time indices. The German rates are used as benchmark values to calculate spreads, as the EURIBOR exists as of 1999 only. Thus, Germany is omitted from the sample. Emu_{preD} – and $emupostD$ are dummy variables that take value 1 respectively before and starting in January 1999 and zero otherwise. Similar dummies are incorporated for the financial crisis in 2008 that takes value 1 respectively before and after the fall of Lehman brothers at 15 September 2008. Also a dummy with value 1 respectively before and after the introduction of the Outright Monetary Transactions is incorporated. Lastly a dummy is added for the Euroscepticism establishment. The dummy will take the value 0 before the moment that Eurosceptics gained 25% of the votes in the European parliament and 1 afterwards. This is used as a proxy to check whether these events have influenced the development of EU integration of EU interest rates. β -EMUmember is a dummy which takes the value of 1 for EMU members, to check whether the integration effect is larger when the single currency is incorporated compared to non-Eurozone countries. The spreads are computed as deviations from the German rates. Germany is the most vital and reliable benchmark in Europe, based on its stability and usage in general for benchmarking EU government bonds or for example for choosing a reliable risk free rate in Europe. Germany is therefore omitted from the regressions.

With a debt market-related variable as dependent variable, a negative β -coefficient indicates that convergence is taking place due to an event or policy introduction, as a negative percentage change in spreads means a higher level of integration. β -convergence provides measures of financial integration that can be compared across sample periods and different financial markets. All data on debt markets can be derived from the Bloomberg terminal, which corresponds to data from the IMF and ECB on the above-mentioned rates.

3.2.1. The effect of financial integration on economic factors

Based on the above-mentioned panel data, an OLS analysis is used with yearly average data over 1997-2017, which accounts to 20 observations per country. To test hypothesis 1 the basic regression (5) takes the following form:

$$\begin{aligned}
GDPgrowth_{i,qt} = & \alpha + \alpha_t + \beta_1 Int.Bank3mnths_{i,q-1t} + \beta_2 GovBond10yrs_{i,q-1t} \\
& + \beta_3 EquityMarkets_{i,q-1t} + \beta_4 M\&A_{i,q-1t} + \beta_5 GDPgrowth_{i,q-1t} + \varepsilon_{i,qt}
\end{aligned} \tag{7}$$

Where the dependent variable: GDP growth, equals yearly real per capita GDP growth. The α denotes the overall time and cross sectional consistent intercept. α_t represents the time fixed effects. This is structured as follows: For each year a dummy is incorporated with zeros and a 1 at the particular year. This means that in each regression, there is one dummy variable for each year and one dummy variable for each country included in the regression. This results in an additional different intercept per year to control for time fixed effects. These time-fixed effects can be analyzed quite straightforward: its captures the difference of each year from an ‘average’ year. I.e. following the financial crisis and sovereign debt crisis in 2007 growth rates were low or negative. As these low growth rates were not caused by financial integration measures, but more likely by other variables, the time fixed effects incorporated capture this deviation not explained by the exogenous variables used in the regression.

The regression follows by the $\Delta Int.Bank3mnths$ indicates the change in the spread for interbank lending rates for country i in year t with respect to the German Bund interbank lending rate. $\Delta GovBonds10yrs$ indicate the spread between 10-Year maturity governments per country i , in year t benchmarked to the German 10-Year government bond. ECM indicates the proxy for financial integration in equity capital markets, as mentioned before. B4 and B5 indicate the ratio’s which determine the corporate activity for country i in year t , as earlier described. $GDPgrowth_{q-1t}$, the lagged version of the dependent variable, controls for serial correlation. This is based on the assumption that current economic growth is affected by earlier economic growth as well. Lastly, both debt market variables are incorporated with their spread value only, rather than the change in spread. This is to check whether a certain reached level of integration pushes growth as well (Whereas the change in spread checks whether the development of financial integration has an effect to growth).

More detailed regressions (2-5) are brought forward, to test the hypothesis on EMU membership, financial developed countries, and the size of an economy. In addition, a few interaction variables are introduced.

The added dummy variables show if membership of the EMU and thus transition to the Euro had a positive influence on country’s GDP growth. The dummy takes value 1 for countries as of the moment they have incorporated the Euro as their currency. Which and when countries have become EMU-members can be found in appendix 1.1. The EMUdummy variable, checks whether the effect of financial integration differs from non-EMU-members in general, and in each individual measure via interaction variables. Three other variables are incorporated as interaction variables. The first, B9, checks whether

financial integration has a different effect on GDP growth for financially developed countries. This is to test whether financially more developed countries benefit from financial integration more. The countries accounted as financially developed countries is based on the sector value added with respect to its national income. The shares of the financial sector are calculated by dividing the value added by the total value added. This data is derived from the OECD. On average over the research period, the most financially developed countries are Luxembourg, Ireland, the UK, the Netherlands, Portugal, Belgium, Italy and Denmark. These countries have averaged value added activity by financial services of at least 5% or higher. The calculations and ratios can be found in appendix 1.2. Lastly, a LargeEconomydummy checks whether the effect of financial integration has a smaller effect for large countries, as suggested in the theoretical framework. Countries averaging a GDP larger than 1 trillion are considered as large. These consist of Germany, the UK, France, Italy and Spain. The corresponding average GDPs over 20 years can be found in appendix 5.

Lastly, interaction variables are added for EMU countries and four countries located in North and Western-Europe, to analyze whether the effect of financial integration amongst the different pillars differs due to geographical reasons, which could be due to cultural or historically rooted reasons. For instance, the interaction variables test whether the integration of debt markets has a stronger effect on growth or unemployment for developed countries, EMU countries or North/Western countries only, whereas in equity markets this might have a less strong effect for less developed countries.

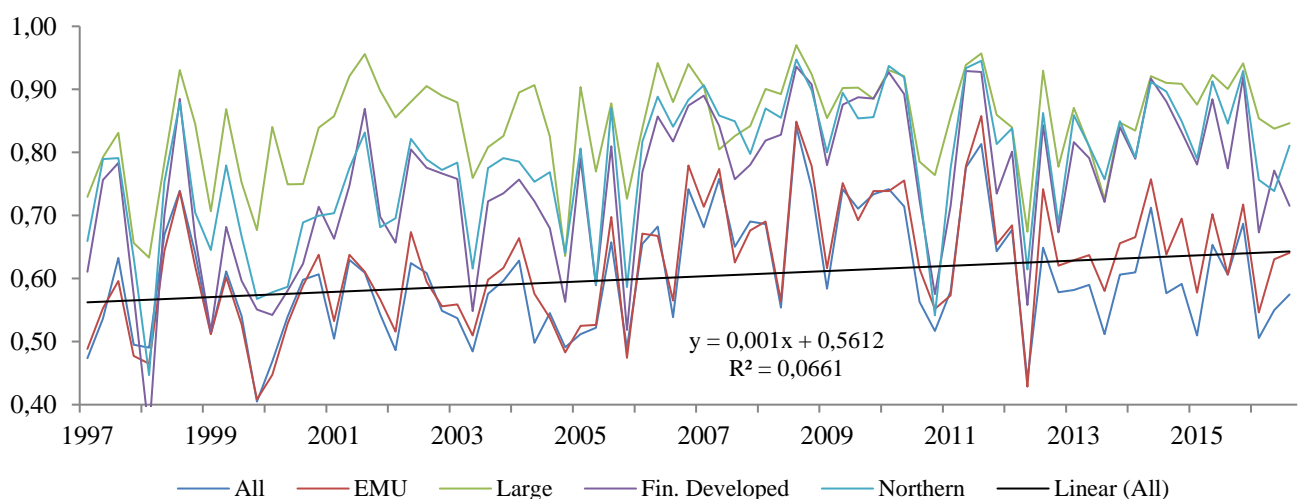
4. Results & Discussion

In this section, first the results of the beta convergence of financial integration regressions are discussed and its implications for the latter regression in which the effects on growth are tested. These are discussed in section 4.2.

4.1 Financial integration development

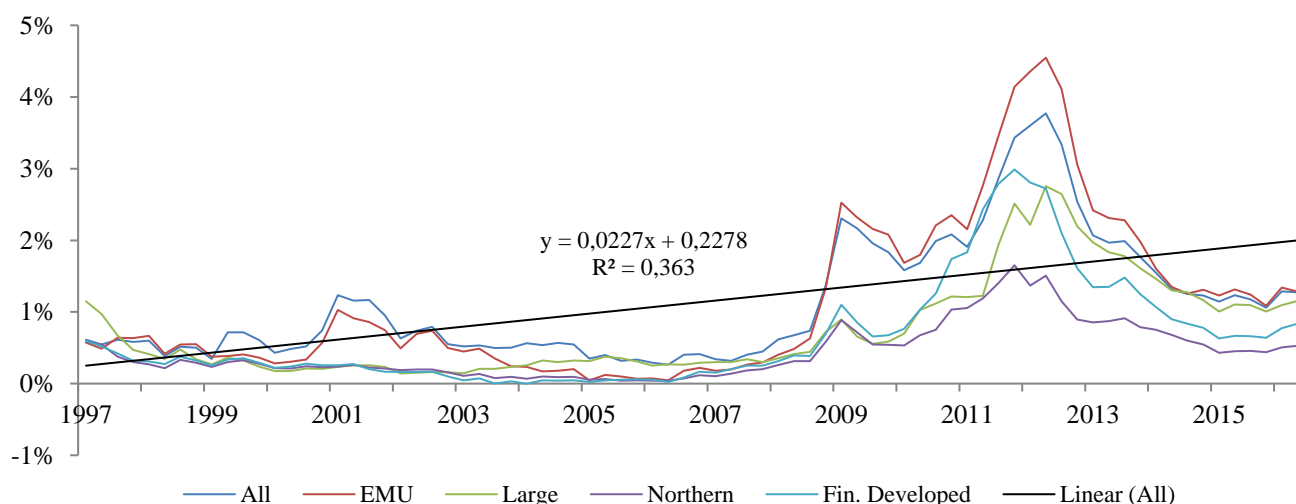
Figure 1 shows the average country correlation of its market index with the EU average, reaching its peak around 2008 in the year that the financial crisis took off. Although there is a slight upward trend, over a 20 year period, it seems that ECM markets have not experienced a clear development in integration. This seems to indicate that ECM markets have converged up to the financial crisis, which decreased ECM integration, possibly due to more local and defensive positions by investors or abstention from foreign markets. As clearly can be derived from the chart, EMU countries are not necessarily more integrated, whereas large countries clearly are more integrated, based on its higher correlation over the entire sample. The same accounts for financially developed and Northwestern countries. Where the average large country has a correlation of about 0.8, financially developed countries and Northwestern countries about 0.7 EMU members on average have a correlation with EU indices ranging between 0.4 and 0.7. Based on these numbers, this graph indicates that EMU countries are not very financially integrated. In other words, the integration in ECM markets seems to be a geographical and finance industry value added related phenomenon. The trend line shows, that over the past 20 years, a slight upward trend is present for the integration of ECM markets.

Figure 1: Average quarterly correlation level of EU stock indices



With respect to DCM markets, or the average spread of government bond yields, figure 2 shows some quite interesting movements. Remarkably, the current EMU countries experience higher spreads the year before the introduction of the Euro in 2002. Afterwards, these spreads decrease and stabilize until the financial crisis in 2008. Following this year and clearly during the peaks of the sovereign debt crisis large increases of spreads occur. Interestingly, the spreads of EMU countries increase to a larger extent than Northern, large of financially developed countries. This indicates that following the crash, Southern countries, in which the debt crisis stuck the most, are not capable of remaining financially integrated during a crash. In recent years however, all categories have stabilized to higher levels of integration, but the gaps between these groups have increased compared to before the crisis.

Figure 2: Average EU Government bond spread



Short term DCM markets show a different path. Figure 3 shows that spread in interbank lending rates on average were quite high in Europe, but decreased in expectation of the EMU introduction. The introduction of the Euro completely erased spreads between interbank lending rates of EMU members. The graph however is based on the average spreads of current members, thus late EMU members Latvia and Estonia are responsible for positive spreads below. Most remarkable in the graph below, is that non EMU members show similar trends and decreases in interbank lending rates, moving along with their decreasing rates. This might indicate that in terms of financial integration, non-EMU countries benefited from the EMU as well. On the other hand, as mentioned before, this convergence of spreads might be due to the OMT and QE by the ECB, pushing interest rates close to, or below zero. Lastly, and again,

the graph shows that North/Western countries tend to be more financially integrated than South/Eastern European countries.

Figure 3: Average EU Interbank lending rate spreads

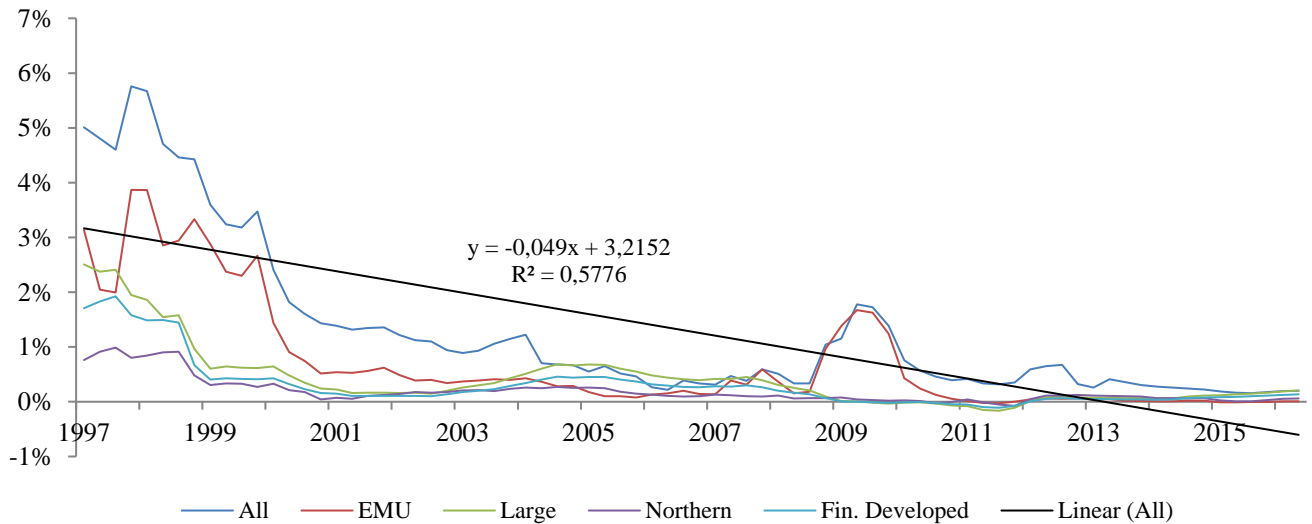
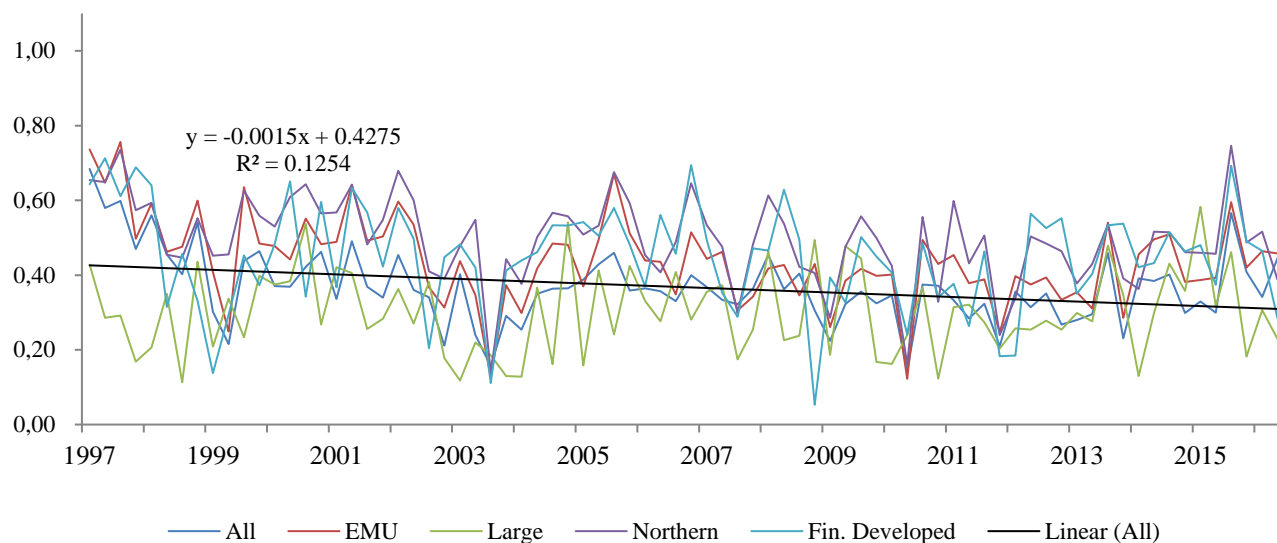


Figure 4 shows the development of financial integration of Europe in terms of M&A activity. First of all, there seems to be no development or forthcoming down or –upward trend. This pillar shows us that Europe is not becoming more integrated with respect to M&A activities, as the ratio cross border/total fluctuates around 50%. Which is relatively small, considering that on average only 35% of EU M&A value is due to cross border transactions. A possible explanation for these low ratio's and absence of financial integration development, might be the differences in tax-policies amongst countries that discourages cross-border M&A, which have remained more or less country-specific to this date.

Figure 4: Average EU cross-border M&A/Total M&A



4.1.2 Beta Convergence of financial integration

To find more detailed and constructive information on the convergence or development of financial integration in Europe between different groups of countries in this section the results on the beta convergence regressions come forth. At first the outcome shows very mixed and very few significant results. Interestingly convergence of cross-border M&A activities shows the most promising outcome. The signs of the coefficients however, do give us a fair view of the most likely development of the integration.

4.1.2.1 Integration of short term debt markets

The outcome of the beta convergence regressions shows very mixed results. The full sample regression on interbank lending rates in table 7 shows a positive and negative sign for the coefficient for the pre and post EMU variables respectively with overnight rates as dependent variable. While insignificant, this indicates that after the EMU integration of short term debt markets did not converge in the European Union entirely. This indicates, since we know that the introduction of the EMU completely integrated interbank lending markets for the EMU, that this complete but partial integration did not pull the entire EU towards convergence.

For the entire European Union, it seems that interbank lending rates are not converging, moreover, as can be seen in table 11, even the intercepts have remained slightly the same in all different regressions, indicating that integration of interbank lending rates is not clearly affected by either the financial crisis, the introduction of the OMT or Euro skepticism in Europe. By taking a closer look at the convergence of interbank lending rates, by zooming in on smaller samples divided by its geographic location or its economies' size, no coefficients show evidence that in these niche groups other developments take place.

4.1.2.2 Integration of equity capital markets

Convergence of equity capital markets, which should mean that the integration measurement would develop itself to an average correlation between markets close to one, takes place when a negative coefficient comes forth (As with interest rate spreads convergence takes place when less integrated countries experience higher change in financial integration, whereas with ECM markets beta convergence takes place when countries with a low correlation experience a larger positive change in ECM integration. Similar to short term DCM markets, in the full country sample in table 7-9, no significant coefficients with a sign indicating convergence can be found. As similar to the graph, which shows major volatility in the integration of ECM markets, no clear developments in the convergence of ECM markets following these events are justified. For EMU countries, the same counts as for the full sample. Meaning hypothesis 2 is not rejected with respect to ECM markets, as there is no stronger convergence present for EMU or large countries following the incorporated events.

4.1.2.3 Integration of long term debt markets

While the long term DCM or 10 year government bond spread convergence in the EU shows little significant results as seen in tables 7-9 it does show some interesting coefficients. For instance, whereas the EMU introduction for the full sample indicates a decrease in the speed of integration, in the EMU countries only sample an increase in the speed of convergence can be seen. This shows no evidence, but hints that, given a possible significant outcome once control variables are incorporated, that the EMU lead to more integrated bond markets for EMU members. Based on the coefficients before and after the financial crisis, derived is that the EMU has seen a decrease in the speed of convergence, whereas the entire EU or North/Western countries only, show a similar coefficient for both before and after the financial crisis. The speed of convergence in the EMU however, is smaller. Interestingly, the introduction of the ECB's OMT program, leads to an increase in the speed of convergence in all samples. This might indicate that indeed the OMT program pushes spreads closer to each other as interest rates have decreased to historically low levels since. Against expectations, the dummy for before and after the Euroceptism's milestone, indicates the same minor increase in the speed of long term debt markets convergence. As mentioned however, apart from certain intercepts, none of these coefficients show significance. This does not merely reject the hypothesis on the differences of convergence for EMU countries.

4.1.2.4 Integration of corporate activities

The regressions on beta convergence of corporate activities show the most promising results with many coefficients significant at a 1% level. First of all, all samples show significant beta convergence following the introduction of the EMU. The speed of this convergence is stronger in EMU countries and

North/Western countries. All are significant at a 1% level. This indicates that in the years following the EMU the value of cross-border M&A compared to total M&A is increasing. Similar coefficients signs and speeds are found with respect to the other incorporated events with respect to the EMU countries and North/Western countries. For the full sample interestingly, the speed of convergence seems to increase following the years of the arrival of Eurosceptic parties in the European parliament.

4.1.2.5 Concluding remarks on beta convergence

Although the regression results on beta convergence are not in line with the expectations, the graphs incorporated show a fair values of financial markets integration, in which one can clearly see that debt markets are integrated to a certain extent and have positively developed in the past decade. The entire EU financial integration took quite a battering during and following the financial crisis. This is case for both DCM, ECM and corporate activities. The studied events however, do not seem to have game changing effects on DCM and ECM markets. The regressions do however find evidence that M&A integration is moving in a smaller pace in the past years following Euroscepticism in non-EMU or South/Eastern European countries.

4.2 Financial integration effects on economic indicators

In this section the most important results based on the economic growth regressions are discussed, determining the most important outcome for this thesis hypothesis. Namely, is financial integration to the benefit of countries' economies and do different capital markets implicate different results? This research analyzes the effect on GDP growth, Unemployment, the CPI index, the real housing price index and unit labor costs over time. The results on each of these economic indicators are discussed separately. Tables 19-23 show the results of the different regressions each constructed the same way. The first regression consists of the financial integration measurements and a dummy for EMU countries only. In the other regressions interaction variables are added for each separate financial integration measurement.

4.2.1 Results: effects on GDP Growth

The baseline regression in table 19 shows different outcomes per integration measurement affecting GDP growth. The coefficient of ECM markets integration has a negative sign and is significant at a 5% level. This provides evidence that the integration of equity capital markets on average leads to lower GDP growth, or in other words, if integration would increase by a 1%, GDP growth would decrease by 0.38 percent. This is of course, against expectations, as literature review indicates that a more integrated capital markets spur investments and therefore economic growth.

In line with expectations, the long term DCM government bond integration measurement shows a negative sign. As the smaller the spread in government bond rates, the higher the integration is, a

negative coefficient of -0.088 indicates that a more integrated long term DCM markets yields higher GDP growth. This however is not significant at a 10% level.

Remarkably, short term DCM markets show a different sign than long term DCM markets. Knowing that EMU countries are completely integrated in this short term DCM market, this could mean that, at least in terms of interbank lending integration, adopting the same currency is not an EMU benefit. After all, it is the adoption of the EU that led to the full integration of short term DCM markets.

The M&A integration measurement for corporate activity integration, has a positive significant at 5% coefficient which means that more financially integrated firms, participating relatively more cross-border M&A, experience higher GDP growth.

Lastly, the dummy for EMU countries shows a significant coefficient with a negative sign, indicating that over the sample period, on average EMU membership does not benefit GDP growth.

The added interaction variables show whether some of the above discussed integration measurements have stronger effects for certain characteristics. As mentioned, in this research these characteristics taken in account are whether a country is large, financially developed, an EMU member or is located in North/Western Europe.

With respect to ECM integration in regression 2, the only significant interaction variable is based on the EMU membership dummy. Whereas the stand alone ECM measurement has a negative coefficient of -3.77 this interaction term with an EMU dummy adds a positive coefficient of 0.579, indicating that EMU members do actually benefit from ECM integration, as opposed to non EMU members.

The only interaction terms with long term DCM markets (regression 3), show that for large countries, a higher degree of long term DCM integration leads to even higher GDP growth on average. This interaction variable with a negative sign is significant at a 10% level. The interaction variables on short term DCM markets in regression 4 show no significant results. Interestingly however, is the magnitude of the coefficient of the interaction variable of 14.99. Although insignificant, the negative impact of a higher degree of short term DCM integration on GDP growth increases massively for EMU members. The EMU interaction term with M&A activity integration in the next regression (5) however, increases the impact for GDP growth, significant at a 5% level. This shows evidence that EMU countries benefit more than non-EMU countries from relatively more cross-border M&A. All five regressions show Durbin-Watson statistics of about 2.0, which indicates that autocorrelation in this OLS regression is merely absent.

4.2.2 Concluding remarks: effects on GDP Growth

These results indicate that integration of financial markets does benefit countries in the EU, at least with respect to GDP growth. Interestingly, EMU membership in general does not seem to have been a benefit to GDP growth on average over the past 20 years. In terms of financial integration however, it clearly has been based on two measurements. The integration of ECM markets in the EU is more to the benefit

of EMU countries than non EMU-members. The same accounts for cross-border M&A activities. Interestingly, here is where the benefits lie for EMU-members, and not in the integration of debt markets.

4.2.3 Results: Effects on CPI

The baseline regression (1) in table 20 is more or less in line with the outcome on GDP growth. All coefficients but short term DCM markets, indicate that a higher degree of integration has a negative impact on inflation levels, which in general is considered preferable. For some of the integration measurements the effect is quite strong. For a 1% increase in ECM market integration, inflation decreases by 1.04%. This is significant at a 1% level, ironically indicating that countries with more integrated equity markets tend to have a higher inflation rate. This outcome is quite interesting; given the fact that while the EMU is pushing financial integration while the ECB is trying to raise interest rates. In line with the ECM markets, the same reasoning can be used for long term DCM markets: The negative and significant coefficient for long term DCM integration indicates that if integration increases, (or the proxy goes down by 1%) inflation rates will on average increase by 0.088%. In other words, a higher degree of long term DCM integration leads to higher inflation.

For short DCM markets, the coefficient shows an opposite sign, meaning this decreases inflation. It is significant at a 1% level. Higher integration of cross-border M&A activities leads to lower inflation. If it increases by 1%, inflation on average decreases by 0.013%. It is however insignificant.

EMU membership seems to increase inflation, as its coefficients value is 0.188, significant at 10% level. So far EMU membership does not seem to be a benefit. In conclusion, integration corporate activities and DCM markets lead to more stability, ECM markets however does not. This could mean that dependency on other country's stock markets decrease price stability as domestic equities might be prone to foreign developments.

Turning to the regression (2) including interaction variables on ECM integration, some interesting coefficients emerge. First of all, the effect described above seems to be smaller for financially developed countries. Or, for a 1% increase in ECM integration, inflation decreases less strongly. On the opposite, for large and even stronger so for north/western located countries, the inflation on average tends to be even lower if ECM integration increases.

Interestingly, the significant results in the regression (3) on interaction terms with long-term DCM markets are also on developed and northwestern located countries. The interaction variable with a dummy for developed countries indicates that for these the effect of long term DCM integration is the opposite. Developed countries on average experience lower inflation for a higher degree of long term DCM integration. The opposite is the case for large and northwestern, for which higher integration goes hand in hand with higher inflation. This seems to indicate that integration long term DCM markets are only beneficial to financially developed countries, rather than for the EU in total.

Regression 4 shows that large countries benefit more from short term DCM market integration.

The last regression (5) shows that financially developed countries tend to have higher inflation for more integration of M&A activities, whereas the opposite is the case for North Western countries.

In all of these regressions, the Durbin-Watson test, show some disturbing values. With a value of 0.3, relatively close to 0, one can argue that there is a considerable level of positive autocorrelation, which probably indicates that the level of inflation is similar to a lagged version of inflation.

4.2.4 Concluding remarks: Effects on CPI

The above discussed results seem to indicate that for matters of inflation, financial integration of all capital markets does not immediately seem to decrease inflation rates and thus lead to more stability. The results show evidence that a higher degree of ECM integration goes hand in hand with lower inflation rates/higher stability. Higher integration of DCM markets lead to lower inflation, which is fairly logic: country's experiencing relatively high inflation, tend to have higher government bond yields as well, increasing the gap with other country's yields, moving away from the law of one price. The third pillar, M&A integration, shows that more integration in corporate activity leads to lower inflation as well.

4.2.5 Results: Effects on Unemployment rate

Table 23 shows the results on the regressions with the unemployment rate as the dependent variable. Regression (1) shows evidence that the integration of ECM markets does not benefit country's in terms of employment. Higher ECM integration seems to lead to higher unemployment rates. The effect is relatively small though. For a 1% increase of ECM integration, unemployment rates increase by 0.3%. Long term DCM integration is in line with expectations. A higher spread in government bond rates increases the unemployment rate, with a quite large coefficient value of 1.235. Both these are significant at a 1% level. M&A markets integration, which is insignificant, nevertheless shows an interesting coefficient value. Its negative coefficient and relatively large value of 1.749 might be interpreted the following way: country's participating more in cross-border M&A tend to lose jobs to foreign countries.

Regression (2) shows no significant interactions, which indicates that the ECM integration effect in regression (1) does not differ amongst different groups within the EU. Regression (3) indicates that for financially developed countries, the integration of long term DCM markets is even more crucial to provide low unemployment rates. Regression (5) shows a significant coefficient at a 1% level for the interaction of M&A integration with northwestern countries. This could indicate that only for north/western countries, more integration of M&A markets leads to lower unemployment rates.

4.2.6 Concluding remarks: Effects on Unemployment rate

With the Durbin-Watson test close to 0, one can conclude that there is some serious autocorrelation. Unemployment rates tend to be related to lagged rates, which makes sense as unemployment rates do not change rapidly on short notice.

4.2.7 Results: Effects on Unit labor costs

Unit labor costs, which is a good indicator of a country's productivity seems to be affected by the integration of short and long term DCM markets, as well as cross-border M&A integration as can be seen in table 21. Regression (1) shows an increase of 1% in the measurement long term DCM integration proxy, leads to a 0.07% decrease in unit labor costs. This means that a higher degree of integrated long term DCM markets leads to higher unit labor costs, or lower productivity. The opposite occurs for short term DCM markets. For both coefficients are significant at a 5% level. Integration of M&A markets is beneficial to countries. An increase of 1% lowers unit labor costs by 0.01%. The EMU dummy, however insignificant, indicates that EMU membership lowers unit labor costs.

The interaction variables in regression 2-5 do indicate many significant results. The only one, which is nevertheless interesting, is that for EMU countries, the impact of M&A integration is not positive but negative ($0.091 - 0.464 = -0.373$). Finally, the lagged GDP growth variable shows highly significant results with relatively high coefficient values, indicating that unit labor costs are prone to economies earlier circumstances in GDP growth. The Durbin-Watson test amongst these regressions is fairly close to 2.0, which indicates that multi-collinearity is merely absent, possibly based on this control variable.

4.2.8 Concluding remarks: Effects on unit labor costs

The effects on unit labor costs are quite clear and do not seem to differ amongst different groups such as the EMU or more financially developed countries. The integration of long term DCM markets have a negative relation with country's 'productivity', for short DCM markets it is the opposite. Integration of these markets is beneficial, as well as the integration of M&A markets. ECM and EMU membership do not seem to have a relation to unit labor costs.

5. Summary

5.1 Summary

To summarize, this thesis contributes to current literature by linking a diverse set of financial integration measurements to its generally assumed economic benefits. In chapter 1 I established the urgency and academic relevancy for this subject. In recent years, Euroscptics have turned against the development of this process, willing to reverse or slow this process. To justify arguments on the benefits of European integration I have used in depth analysis to value developments in financial integration and contradict blunt misperceptions.

The literature review in chapter 2 pointed out that main rationale for financial integration consists of three pillars: it leads to risk sharing and therefore more stable markets, more efficient allocation of capital for investment opportunities and ultimately increased investment which leads to potential growth. Furthermore, previous literature shows mixed evidence on the benefits of financial integration for less financially developed countries. Less financially developed countries could benefit more from accumulated cheaper finance leading to higher growth. On the other hand, by accumulating foreign finance or equity, these countries are considered to be ones experiencing growth and turnover as well. Also, literature finds evidence for the influence of political or geographical factors on a country's economy size.

In this thesis by a different approach, based on the law of one price, I measure financial integration to analyze its development and implications for economic growth in the European Union. The law of one price is assumed to hold if assets with the same return and risk characteristics generate the same returns. Or: if finance costs or decisions are regardless of country-specific characteristics. The main research question in this thesis is as follows: "What are the economic benefits associated with financial integration for EU state-members?". To answer this question, three main factors measure the degree of financial integration based on: equity capital markets integration, short and long debt capital market integration and M&A activity. The development and convergence of these pillars is measured, based on a methodology similar to the Solow-growth model, to identify potential beta convergence.

I demonstrate that ECM integration on average experiences a slight upward trend, whereas large, financially developed or North-Western countries are more integrated. Furthermore, ECM markets have not converged following the EMU, financial crisis, OMT or Euroscpticism in the EU, nor in the EMU. I demonstrate that financial integration in DCM markets has increased but took a battering by the financial crisis. Also, developments in short and long term DCM markets show considerate integration since the EMU, which took a battering following the financial crisis in 2008. The EMU introduction led to complete convergence in interbank lending rates of EMU countries, but no convergence for the rest of the EU. Moreover, the beta convergence regression of long term DCM markets show evidence that Draghi's outright money transaction has not led to any convergence. Lastly, although M&A integration has not really developed over the past 20 years, probably due to differences in individual

countries' tax policies on M&A or protection mechanisms, remarkably, the EMU led to beta convergence in the EU, whereas the convergence is stronger in the EMU. In conclusion on beta convergence, the influence of the EMU, the financial crisis, OMT and Euroscepticism is merely limited, with slight exceptions of DCM markets, for which on short term these entirely integrated for EMU countries and for both short and long term, were affected by the financial crisis. No evidence is found for different effects on financially developed countries.

I find evidence that financial integration mostly economically benefits EU countries but that its effect differs amongst the integration of different capital markets. I demonstrate that EU countries with a higher degree of ECM integration, experience more economic stability, but higher unemployment rates and lower GDP growth. Interestingly, EMU countries experience the same benefits but also higher GDP growth for more ECM integration, while on average they experience lower GDP growth.

The results show a positive relation between long term DCM market integration and GDP growth, which effect is stronger for large countries. Stronger integration of long term DCM markets also increases stability and lowers the unemployment rate, which effects are both stronger for financially developed countries. A higher degree of long term DCM integration does however, decrease productivity. In line with long term DCM, a high degree, which EMU members have, decreases stability. It does however lead to lower GDP growth, in line with EMU membership, which completely integrates short term DCM markets. Size, geography or financial development do not influence this. The integration of M&A activities increases growth, which effect is stronger for EMU countries. It also leads to lower inflation. Interestingly, on average it does not lead to lower unemployment rates, but it does in north/western countries. This might indicate that by participation in cross-border M&A, jobs are lost to north western countries. Lastly, M&A integration also increases countries' productivity.

5.2 Relevance of research

5.2.1 Academic

The academic relevance of this research is clear in the sense that it adds value to the discussion on EU membership based on the benefits of financial integration. Where the focus in academic research mainly lies in capital flows, based on FDI, this thesis investigates whether financial integration based on the law of one price in Europe has been affected over time by policy changes or crucial events, incorporating its convergence over time. Furthermore, it adds value to previous research on the economic benefits of financial integration, based a different approach prone to a diverse number of factors and proxies for different measurements of financial integration.

5.2.2 Practical

The practical relevance of this research in my opinion is highly valuable in current discussions throughout Europe on EU or EMU membership. The discussions whether a country should increase international cooperation through EU policies and its results over time, should be done based on strong evidence or research, rather than sentiment or speculation. The outcome of this research is therefore relevant (at least from an economic perspective) in the sense that one might argue, or not, to cherish EU membership based on economic expectations and the burdens such as the financial crisis it has strengthened to overcome or weaken. As in this research multiple different measures for financial integration are used, results are indicative of different financial or capital markets.

5.3 Limitations

Of course, due to the complexity of financial integration one should be careful to conclude on such a universal topic. Integration of financial markets is prone to subjective reason or different measurement considerations. Due to the broad and various ways to approach a single definition, concluding on the current development of integration based on these three pillars, one cannot claim a complete and just answer to the research question. Also, as markets tend to act irrational, one could even argue that full market integration is impossible whenever behavioral or human aspects are involved.

The availability of data has been crucial for this research. For that reason, only EU members of the OECD were taken into account. Malta, Lithuania, Cyprus, Romania, Bulgaria and Croatia are omitted. As mentioned before however, believed is that similar countries to the above, as well as the fact that the magnitude of these economies are not very unique, provide enough representation by which the results of this research would not change the outcome. Also, their M&A activity is rather small, meaning that many data would be lost as their cross-border to total M&A value would be zero.

Other limitations might be based on the measurement pillars used. While in this research all M&A activity is taken in account to represent foreign corporate activity, to the extent that as European markets become more integrated, based on the law of one price, an increased number of cross-border M&A in all sectors are expected. This indicator however, may reflect economic integration in general, rather than the integration of financial markets. On the other hand, many countries which lack a large value added by the finance sector, not even mentioning cross-border M&A activity would limit the amount of countries which could be taken in account for analysis.

5.4 Future research

In further research one might want to focus on other aspects that could be considered important in financial integration, such as consuming patterns on a micro-level. For instance, retail consumers with foreign deposits, or trading cross-border trading volumes.

As the EMU introduced a benchmark in Europe for European overnight interbank lending rates, one could research a more detailed analysis of the financial integration in these short term DCM markets. This complete illumination of overnight rate spreads for EMU countries surely has some more interesting dynamics to study closely and compare with countries how have not adopted the Euro.

Interesting in further research, would be to compare convergence levels to integration in South-East Asia or the US, to really determine whether for instance the EMU implies a significant difference in the development of financial markets. Moreover, one could even compare certain policy introductions or legislations between these markets, to measure what introduction really are essential to this process. For example, by researching this, one could more profoundly determine requirements to enter a monetary or trade union. This could be done by zooming in on shorter periods where policy introductions where, based on more frequent data, whereas in this research the analysis was based on a 20 year period, with quarterly data.

5.5 Acknowledgements

Through this thesis, I would like to thank a number of people who have made the process of writing this thesis possible and contributed to my enjoyment of the past years as a student in Rotterdam.

First and foremost, I would like to thank my thesis supervisor Dr. Eisert, for his advice and willingness to support my subject while letting me work very independently. It made writing my thesis an efficient and effective process. In particular, I am grateful to my parents for their utmost support to create an independent mind and to develop myself in my own interests during my education.

6. Appendix A.

Tabel 1: EMU Members

EMU Member	Since
Belgium	2002
Germany	2002
Estonia	2011
Finland	2002
France	2002
Greece	2002
Ireland	2002
Italy	2002
Lithuania	2015
Luxemburg	2002
Netherlands	2002
Austria	2002
Portugal	2002
Slovakia	2009
Spain	2002
Non EMU Members	
Czech Republic	
Denmark	
United Kingdom	
Hungary	
Poland	
Sweden	

Table 2: Geographic Location

North & Western EU countries

Austria

Belgium

Germany

Denmark

Finland

France

United Kingdom

Ireland

Luxembourg

Netherlands

Sweden

Table 3: Financially Developed Countries

Financially Developed	% Value Added
Luxembourg	26,1%
Ireland	8,6%
United Kingdom	7,0%
Netherlands	7,1%
Portugal	6,5%
Belgium	5,8%
Denmark	5,4%
<hr/>	
Financially Less Developed	
Italy	5,1%
Austria	4,8%
Spain	4,6%
Greece	4,6%
Germany	4,7%
Slovenia	4,6%
Sweden	4,2%
Hungary	4,3%
Latvia	4,1%
Poland	4,0%
Estonia	4,0%
France	4,0%
Slovakia	3,6%
Czech Republic	3,8%
Finland	2,9%

Source: OECD Average 1997 - 2016

Table 4: Incorporated EU countries and size

Large Countries	GDP in Bn
Germany	2.848
United Kingdom	2.123
France	2.028
Italy	1.823
Spain	1.247
Small Countries	GDP in Bn
Netherlands	623
Poland	629
Belgium	371
Sweden	338
Austria	307
Greece	272
Czech Republic	243
Portugal	238
Denmark	201
Hungary	182
Finland	177
Ireland	172
Slovakia	103
Lithuania	53
Slovenia	49
Luxembourg	36
Latvia	33
Estonia	24

Source: OECD 2016

Table 5: Event dates

Event	Date
EMU EURO	01-Jan-99
2008 Great Recession	15-Aug-08
EU Government Debt Crisis	01-Dec-09
ECB Outright Monetary Transactions	06-Sep-12
Euroscepticism in EU Parliament	25-May-14

Table 6: Country Specific Stock Index

Country	Stock Exchange Index Ticker
Austria	ATX
Belgium	BEL-20
Czech republic	PX Index
Denmark	KFX Index
Estonia	TALSE Index
Finland	HEX
France	CAC40
Germany	DAX
Greece	ASE Index
Hungary	BUX
Ireland	ISEQ-20
Italy	FTSE MIB
Luxembourg	LUXXX
Lithuania	VILSE Index
Netherlands	AEX
Poland	WIG20
Portugal	PSI20
Slovakia	SK Index
Slovenia	SV Index
Spain	MADX
Sweden	OMX Helsinki
UK	UKX

Source: Bloomberg Enterprises

Figure 1: Average correlation of market indices with EU average

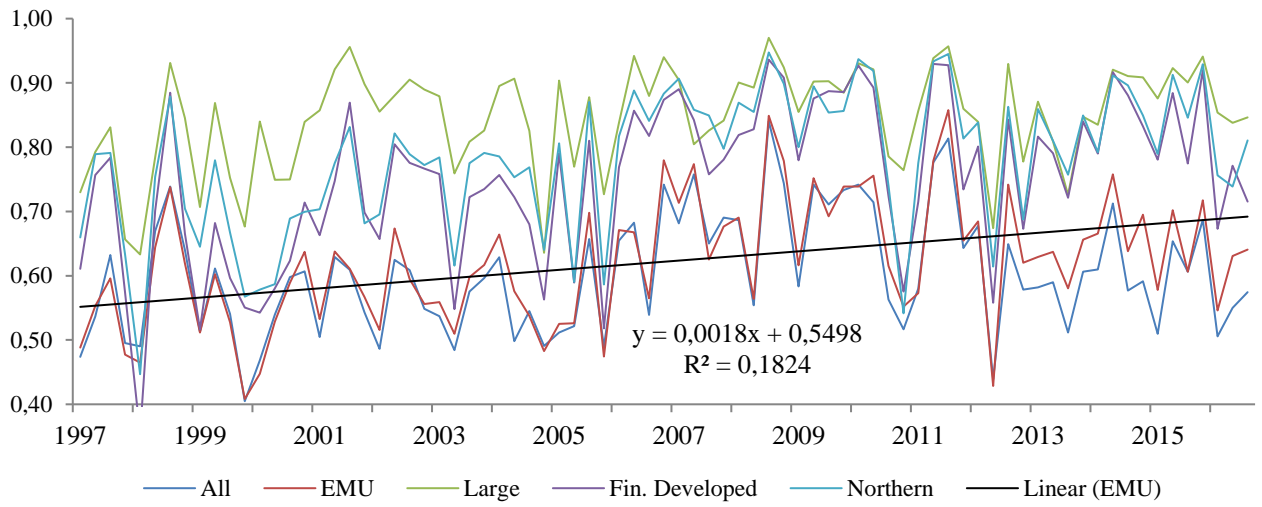


Figure 2: Average EU spread bond yields

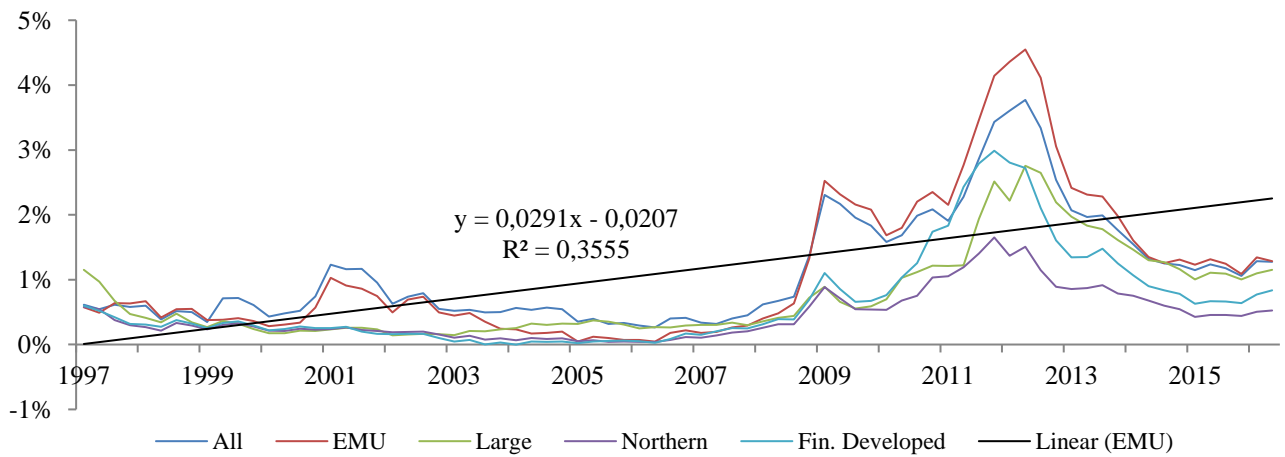


Figure 3: Average EU spread interbank lending rates

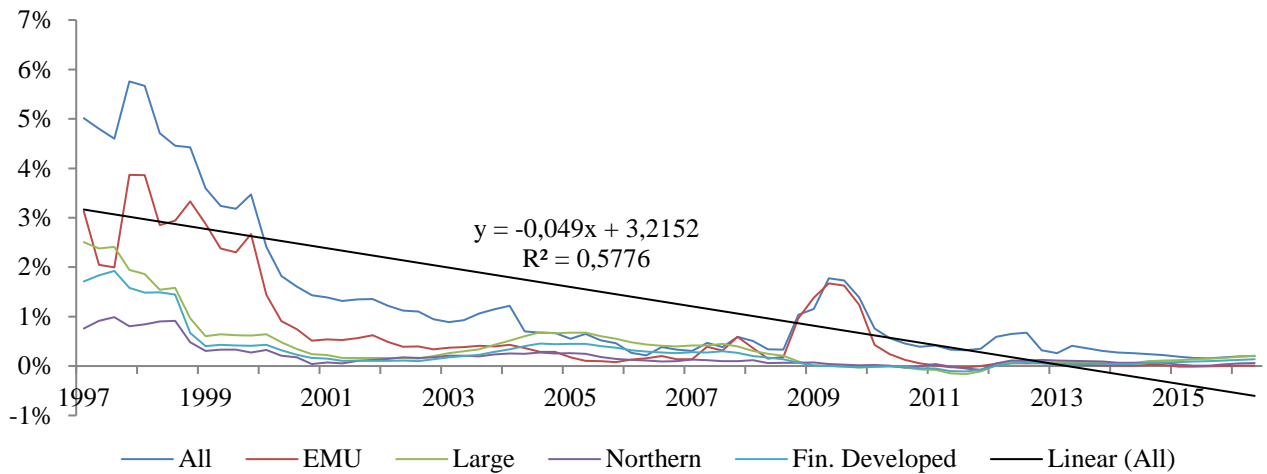


Figure 4: Average EU Cross border M&A ratio

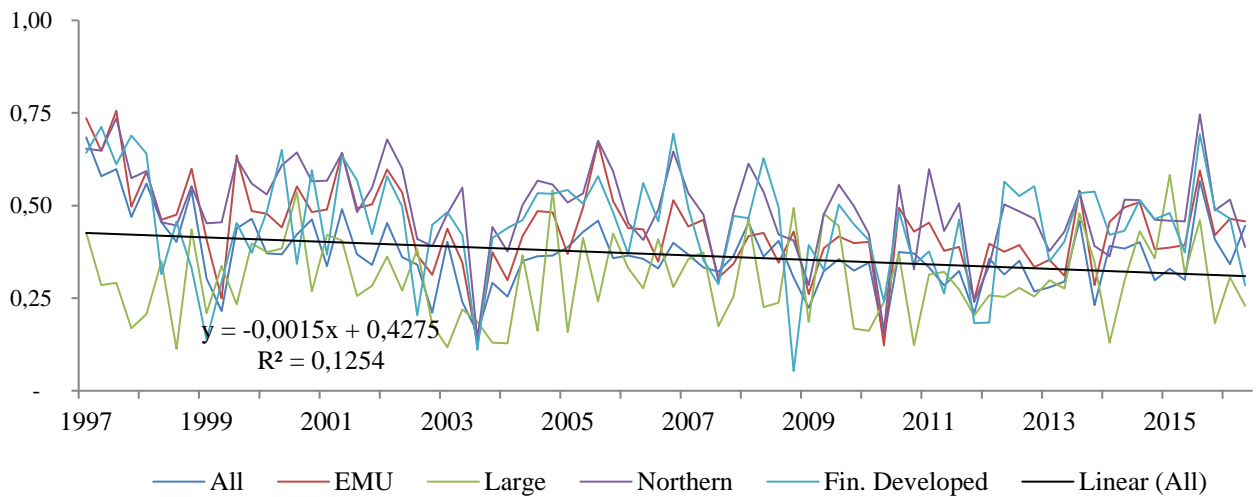


Figure 5: Average EU indices weekly stock return 1997 - 2016

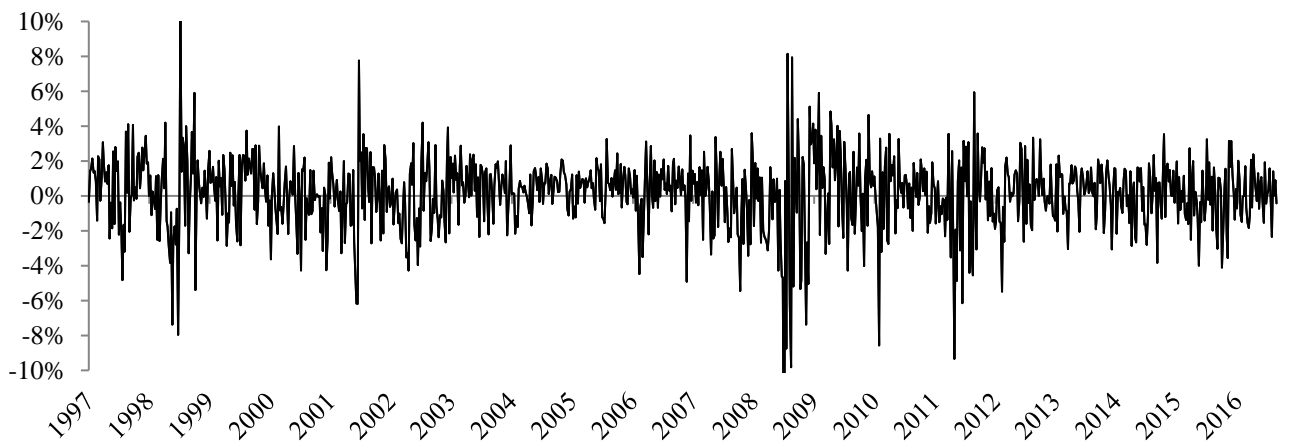


Table 7: Estimation results: Full Country Sample

Dependent Variable: (1)Int.DCM (2)ECM (3)GOVDCM (4)M&A				
	(1)	(2)	(3)	(4)
Intercept	-0.299** (0.014)	0.543 (0.150)	0.089 (0.432)	14.003 (0.124)
Pre-EMU	0.022 (0.497)	-0.702 (0.388)	-0.083 (0.807)	-19.323 (0.124)
Post-EMU	0.035 (0.313)	-0.684 (0.177)	-0.018 (0.699)	-19.881*** (0.000)
Observations:	1509	1505	1519	1047
Adj. R ²	-0.001	0.000	-0.001	0.010

*, **, *** denotes significance at the 10%, 5% and 1% level respectively

Probabilities in parentheses

Table 8: Estimation results: Full Country Sample

Dependent Variable: (1)Int.DCM (2)ECM (3)GOVDCM (4)M&A				
	(1)	(2)	(3)	(4)
Intercept	-0.297** (0.014)	0.545 (0.150)	0.097 (0.402)	14.011 (0.164)
Pre-Crisis2008	0.025 (0.325)	-0.696 (0.200)	-0.060 (0.620)	-20.164 (0.358)
Post-Crisis2008	0.053 (0.446)	-0.676 (0.200)	-0.015 (0.761)	-19.358 (0.004)***
Observations:	1509	1505	1519	1047
Adj. R ²	-0.001	0.001	-0.001	0.010

*, **, *** denotes significance at the 10%, 5% and 1% level respectively

Probabilities in parentheses

Table 9: Estimation results: Full Country Sample

Dependent Variable: (1)Int.DCM (2)ECM (3)GOVDCM (4)M&A				
	(1)	(2)	(3)	(4)
Intercept	-0.298** (0.015)	0.543 (0.150)	0.086 (0.443)	14.003*** (0.000)
Pre-OMT	0.028 (0.273)	-0.686 (0.184)	-0.012 (0.829)	-19.906 (0.001)***
Post-OMT	0.085 (0.673)	-0.681 (0.256)	-0.034 (0.658)	-19.536 (0.027)**
Observations:	1509	1505	1519	1047
Adj. R ²	-0.001	0.000	-0.001	0.010

*, **, *** denotes significance at the 10%, 5% and 1% level respectively

Probabilities in parentheses

Table 10: Estimation results: Full Country Sample

Dependent Variable: (1)Int.DCM (2)ECM (3)GOVDCM (4)M&A				
	(1)	(2)	(3)	(4)
Intercept	-0.297** (0.014)	0.543 (0.150)	0.087 (0.440)	13.160*** (0.000)
Pre-EuroScepticism	0.028 (0.270)	-0.686 (0.182)	-0.018 (0.704)	-17.772*** (0.001)
Post-EuroScepticism	0.139 (0.709)	-0.677 (0.318)	-0.024 (0.870)	-10.604 (0.198)
Observations:	1509	1505	1519	1047
Adj. R ²	-0.001	0.000	-0.001	0.009

*, **, *** denotes significance at the 10%, 5% and 1% level respectively

Probabilities in parentheses

Table 11: Estimation Results: EMU Sample

Dependent Variable: (1)ECM (2)GOVDCM (3)M&A			
	(1)	(2)	(3)
Intercept	0.257 (0.612)	0.198*** (0.003)	18.758*** (0.000)
Pre-EMU	-0.302 (0.788)	-0.108 (0.561)	-25.087 (0.140)
Post-EMU	-0.317 (0.636)	-0.033 (0.203)	-26.446*** (0.001)
Observations:	1134	1139	815
Adj. R ²	-0.002	0.000	0.012

*, **, *** denotes significance at the 10%, 5% and 1% level respectively

Probabilities in parentheses

Table 12: Estimation Results: EMU Sample

Dependent Variable: (1)ECM (2)GOVDCM (3)M&A			
	(1)	(2)	(3)
Intercept	0.257 (0.613)	0.217*** (0.001)	18.752*** (0.000)
Pre-Crisis2008	-0.316 (0.662)	-0.151 (0.145)	-26.284*** (0.002)
Post-Crisis2008	-0.317 (0.649)	-0.030 (0.240)	-26.402*** (0.006)
Observations:	1134	1139	815
Adj. R ²	-0.001707	0.001092	0.012205

*, **, *** denotes significance at the 10%, 5% and 1% level respectively

Probabilities in parentheses

Table 13: Estimation Results: EMU Sample

Dependent Variable: (1)ECM (2)GOVDCM (3)M&A			
	(1)	(2)	(3)
Intercept	0.257 (0.612)	0.196*** (0.003)	18.752*** (0.000)
Pre-OMT	-0.315 (0.646)	-0.024 (0.428)	-26.480*** (0.001)
Post-OMT	-0.321 (0.685)	-0.052 (0.207)	-25.710** (0.032)
Observations:	1134	1139	815
Adj. R ²	-0.001707	0.000045	0.012211

*, **, *** denotes significance at the 10%, 5% and 1% level respectively

Probabilities in parentheses

Table 14: Estimation Results: EMU Sample

Dependent Variable: (1)ECM (2)GOVDCM (3)M&A			
	(1)	(2)	(3)
Intercept	0.257 (0.613)	0.196*** (0.003)	18.759*** (0.000)
Pre-EuroScepticism	-0.313 (0.646)	-0.033 (0.216)	-26.470*** (0.001)
Post-EuroScepticism	-0.332 (0.712)	-0.045 (0.581)	-25.168 (0.103)
Observations:	1134	1139	815
Adj. R ²	-0.002	0.000	0.012

*, **, *** denotes significance at the 10%, 5% and 1% level respectively

Probabilities in parentheses

Table 15: Estimation results: NorthWest

Dependent Variable: (1)Int.DCM (2)ECM (3)GOVDCM (4)M&A				
	(1)	(2)	(3)	(4)
Intercept	-0.488*	0.582	0.083	16.417***
	(0.048)	(0.154)	(0.685)	(0.000)
Pre-EMU	0.159	-0.775	-0.173	-22.764
	(0.601)	(0.265)	(0.878)	(0.159)
Post-EMU	0.210	-0.699	-0.040	-23.100***
	(0.473)	(0.167)	(0.868)	(0.004)
Observations:	752	840	759	712
Adj. R ²	-0.005	0.000	-0.003	0.008

***, **, *** denotes significance at the 10%, 5% and 1% level respectively**
Probabilities in parentheses

Table 16: Estimation results: NorthWest

Dependent Variable: (1)Int.DCM (2)ECM (3)GOVDCM (4)M&A				
	(1)	(2)	(3)	(4)
Intercept	-0.486	0.583	0.089	16.435***
	(0.181)	(0.155)	(0.673)	(0.000)
Pre-Crisis2008	0.181	-0.721	-0.143	-23.551***
	(0.430)	(0.179)	(0.831)	(0.007)
Post-Crisis2008	0.245	-0.688	-0.035	-22.383**
	(0.732)	(0.176)	(0.886)	(0.018)
Observations:	752	840	759	712
Adj. R ²	-0.005	0.000	-0.003	0.008

***, **, *** denotes significance at the 10%, 5% and 1% level respectively**
Probabilities in parentheses

Table 17: Estimation results: NorthWest

Dependent Variable: (1)Int.DCM (2)ECM (3)GOVDCM (4)M&A				
	(1)	(2)	(3)	(4)
Intercept	-0.502	0.576	0.084**	16.421***
	(0.045)	(0.156)	-(0.032)	(0.000)
Pre-OMT	0.183	-0.701	-0.032	-23.212***
	(0.412)	(0.173)	(0.901)	(0.004)
Post-OMT	0.680	-0.685	-0.110	-22.484*
	(0.645)	(0.205)	(0.837)	(0.064)
Observations:	752	840	759	712
Adj. R ²	-0.004	0.000	-0.003	0.008

***, **, *** denotes significance at the 10%, 5% and 1% level respectively**
Probabilities in parentheses

Table 18: Estimation results: NorthWest

Dependent Variable: (1)Int.DCM (2)ECM (3)GOVDCM (4)M&A				
	(1)	(2)	(3)	(4)
Intercept	2.000** (0.048)	0.577 (0.157)	0.083 (0.684)	16.434*** (0.000)
Pre-EuroScepticism	0.185 (0.408)	-0.701 (0.172)	-0.040 (0.868)	-23.282*** (0.004)
Post-EuroScepticism	0.509 (0.829)	-0.680 (0.238)	-0.161 (0.876)	-21.526 (0.152)
Observations:	752	840	759	712
Adj. R ²	-0.005	0.000	-0.003	0.008

***, **, *** denotes significance at the 10%, 5% and 1% level respectively**

Probabilities in parentheses

Box 1. Description of the variables used in the empirical analysis

The baseline equation includes the following explanatory variables (See appendix xx for results)

Regression on economic effects (All independent variables are lagged with 1 quarter (tq-1))

- *Dependent variable (y)*. **Growth in real GDP per capita, Unemployment Rate, Consumer Price Index** (Inflation rate), **Unit Labor Cost per capital**
- *Independent variable (pECM)*. Correlation of a country's market index with the average of EU market indices, based on weekly market returns
- *Independent variable (DCM10yrs)*. Spread between a country's 10 year government bond yield and Germany's government bond yield at that time
- *Independent variable (DCMovernight)*. Spread between a country's 3-month interbank overnight rate and the 3-month interbank rate of Germany at that time
- *Independent variable (Cross-Border M&A)*. Ratio between cross-border M&A value and tot total M&A value taking place in a country in each quarter
- *Independent variable (EMU)*. Dummy which takes the value of 1 for EMU members, starting in the first quarter of membership
- *Interaction variable (Independent Variable*country specific dummy)*. Interactions are with: Dummy for EMU membership, Dummy for size, Dummy for geographic location, dummy for financial sector value added
- *Independent variable (GDP growth tq-1)*. Lagged GDP growth with tq-1, to control for the fact that growth can be due to growth experienced a period earlier
- *Independent variable (Period fixed effects)*. Dummy taking 1 for specific year and 0 for others. Thus 19 dummies are incorporated, to cancel out fixed yearly effects

- *Indicators measuring financial development*: OECD definition: Value added reflects the contribution of labor and capital to production. Value added by activity breaks down the total value added by sector, namely agriculture, industry, utilities, and other service activities. The shares of each sector are calculated by dividing the value added in each sector by total value added (OECD, 2017)
- *Indicators measuring country size*: Countries with a GDP average over the estimation period 1997-2016 larger than 1 trillion Euro

Table 19. Dependent Variable: GDP Growth

	T-1	(1)	(2)	(3)	(4)	(5)
Intercept		0.730*** (0.002)	0.840*** (0.001)	0.700*** (0.003)	0.726*** (0.002)	0.793*** (0.001)
ρ ECM		-0.377** (0.018)	-0.505** (0.021)	-0.340** (0.036)	-0.347** (0.031)	-0.344** (0.035)
DCM10yrs		-0.088*** (0.000)	-0.084*** (0.000)	-0.045 (0.468)	-0.089*** (0.000)	-0.080** (0.000)
DCMOvernight		0.027 (0.218)	0.020 (0.378)	0.005 (0.889)	0.030 (0.177)	0.024 (0.282)
CrossborderM&A		0.161* (0.077)	0.110 (0.250)	0.132 (0.151)	0.145 (0.114)	-0.187 (0.255)
EMU		-0.188 (0.021)	-0.619** (0.019)	-0.146 (0.105)	-0.200** (0.015)	-0.352** (0.001)
ECM*EMU			0.579* (0.078)			
ECM*Developed			0.166 (0.110)			
ECM*Large			-0.157 (0.103)			
ECM*Northwest			-0.066 (0.571)			
Long-Term DCM*EMU				-0.051 (0.426)		
Long-Term DCM*Developed				0.153 (0.443)		
Long-Term DCM*Large				-0.105 (0.087)		
Long-Term DCM*Northwest				-0.070 (0.727)		
Short-Term DCM*EMU					14.988 (0.867)	
Short-Term DCM*Developed					-0.038 (0.877)	
Short-Term DCM*Large					-0.149 (0.230)	
Short-Term DCM*Northwest					0.092 (0.672)	
M&A*EMU						0.414** (0.029)
M&A*Developed						0.202 (0.180)
M&A*Large						-0.233 (0.251)
M&A*Northwest						0.071 (0.705)
GDP Growth t-1		0.022 (0.446)	0.017 (0.555)	0.016 (0.586)	0.019 (0.503)	0.013 (0.642)
Observations:		1220	1220	1220	1220	1220
D.-W. Stat		2.067	2.062	2.063	2.066	2.070
R ²		0.219	0.224	0.223	0.220	0.227
Adj. R ²		0.203	0.206	0.204	0.201	0.208
Fixed period effects		Yes	Yes	Yes	Yes	Yes

Table X: Estimation results: Full Country Sample

*, **, *** denotes significance at the 10%, 5% and 1% level respectively

P-Values in parentheses

Table 20. Dependent Variable: Consumer Price Index

	T-1	(1)	(2)	(3)	(4)	(5)
Intercept		0.884*** (0.002)	0.903*** (0.002)	0.905*** (0.002)	0.856*** (0.003)	0.792*** (0.006)
ρ ECM		-1.036*** (0.000)	-0.578** (0.029)	-0.969*** (0.000)	-0.899*** (0.000)	-0.867*** (0.000)
DCM10yrs		0.088*** (0.000)	-0.124*** (0.000)	-0.115 (0.129)	-0.095*** (0.000)	-0.111*** (0.000)
DCMOvernight		0.417*** (0.000)	0.390 (0.415)	0.424*** (0.000)	0.444 (0.185)	0.397** (0.044)
CrossborderM&A		-0.013 (0.908)	0.094 (0.415)	0.025 (0.822)	-0.074 (0.505)	0.640*** (0.001)
EMU		0.188* (0.059)	-0.243 (0.445)	0.197* (0.074)	0.131 (0.185)	0.260** (0.044)
ECM*EMU			0.560 (0.158)			
ECM*Developed			0.402*** (0.001)			
ECM*Large			-0.227* (0.051)			
ECM*Northwest			-0.897*** (0.000)			
Long-Term DCM*EMU				0.024 (0.755)		
Long-Term DCM*Developed				0.590** (0.015)		
Long-Term DCM*Large				0.031 (0.680)		
Long-Term DCM*Northwest				-0.770*** (0.002)		
Short-Term DCM*EMU					-23.990 (0.825)	
Short-Term DCM*Developed					0.171 (0.567)	
Short-Term DCM*Large					-0.270* (0.072)	
Short-Term DCM*Northwest					-0.424 (0.109)	
M&A*EMU						-0.164 (0.475)
M&A*Developed						0.639*** (0.001)
M&A*Large						-0.411* (0.095)
M&A*Northwest						-1.193*** (0.000)
GDP Growth t-1		-0.036 (0.303)	-0.048 (0.165)	-0.033 (0.354)	-0.042 (0.224)	-0.040 (0.252)
Observations:		1220	1220	1220	1220	1220
D.-W. Stat		0.289	0.295	0.291	0.291	0.319
R ²		0.494	0.512	0.500	0.508	0.507
Adj. R ²		0.483	0.500	0.488	0.496	0.495
Fixed period effects		Yes	Yes	Yes	Yes	Yes

Table X: Estimation results: Full Country Sample

*, **, *** denotes significance at the 10%, 5% and 1% level respectively

P-Values in parentheses

Table 21. Dependent Variable: Unit Labor Costs

	T-1	(1)	(2)	(3)	(4)	(5)
Intercept		0.855*** (0.006)	0.765** (0.019)	0.836*** (0.008)	0.821*** (0.008)	0.777** (0.013)
ρ ECM		-0.256 (0.224)	-0.051 (0.860)	-0.244 (0.257)	-0.237 (0.266)	-0.269 (0.215)
DCM10yrs		-0.070*** (0.006)	-0.079** (0.003)	-0.048 (0.556)	-0.070*** (0.006)	-0.077*** (0.003)
DCMOvernight		0.071** (0.015)	0.072** (0.016)	0.060 (0.217)	0.073** (0.013)	0.073** (0.014)
CrossborderM&A		-0.229* (0.057)	-0.186 (0.144)	-0.232* (0.057)	-0.230* (0.058)	0.091 (0.674)
EMU		-0.010 (0.922)	0.249 (0.476)	0.002 (0.986)	0.003 (0.978)	0.162 (0.251)
ECM*EMU			-0.348 (0.423)			
ECM*Developed			-0.058 (0.674)			
ECM*Large			0.021 (0.866)			
ECM*Northwest			-0.097 (0.530)			
Long-Term DCM*EMU				-0.021 (0.803)		
Long-Term DCM*Developed				-0.050 (0.849)		
Long-Term DCM*Large				-0.011 (0.892)		
Long-Term DCM*Northwest				0.031 (0.909)		
Short-Term DCM*EMU					149.261 (0.208)	
Short-Term DCM*Developed					0.551 (0.111)	
Short-Term DCM*Large					-0.092 (0.627)	
Short-Term DCM*Northwest					-0.411 (0.153)	
M&A*EMU						-0.464* (0.065)
M&A*Developed						0.076 (0.706)
M&A*Large						0.170 (0.526)
M&A*Northwest						-0.189 (0.446)
GDP Growth t-1		0.166*** (0.000)	0.167*** (0.000)	0.166*** (0.000)	0.168*** (0.000)	0.173*** (0.000)
Observations:		1216	1216	1216	1216	1216
D.-W. Stat		2.103	0.107	2.103	2.107	2.102
R ²		0.105	0.107	0.105	0.108	0.109
Adj. R ²		0.086	0.085	0.083	0.087	0.087
Fixed period effects		Yes	Yes	Yes	Yes	Yes

Table X: Estimation results: Full Country Sample

*, **, *** denotes significance at the 10%, 5% and 1% level respectively

P-Values in parentheses

Table 22. Dependent Variable: Unemployment rate

	T-1	(1)	(2)	(3)	(4)	(5)
Intercept		7.053*** (0.000)	7.245*** (0.000)	7.309*** (0.000)	7.007*** (0.000)	7.206*** (0.000)
ρ ECM		0.328*** (0.000)	1.369** (0.025)	-0.334 (0.486)	0.558 (0.267)	0.059 (0.905)
DCM10yrs		1.235*** (0.000)	1.092 (0.132)	0.967*** (0.000)	1.225*** (0.000)	1.187 (0.840)
DCMOvernight		-0.066 (0.329)	-0.144** (0.020)	0.065 (0.546)	-0.035 (0.611)	-0.113* (0.091)
CrossborderM&A		-1.749 (0.491)	-0.411 (0.132)	-1.238*** (0.000)	-1.822 (0.499)	-0.100 (0.840)
EMU		1.466 (0.385)	0.602 (0.411)	1.244 (0.889)	1.340 (0.458)	1.575 (0.498)
ECM*EMU			0.791 (0.387)			
ECM*Developed			-1.270 (0.173)			
ECM*Large			2.147 (0.566)			
ECM*Northwest			-2.536 (0.491)			
Long-Term DCM*EMU				0.248 (0.177)		
Long-Term DCM*Developed				1.258 (0.035)		
Long-Term DCM*Large				1.940 (0.909)		
Long-Term DCM*Northwest				-1.606*** (0.008)		
Short-Term DCM*EMU					-28.891 (0.915)	
Short-Term DCM*Developed					0.655 (0.423)	
Short-Term DCM*Large					-0.303 (0.499)	
Short-Term DCM*Northwest					-1.290* (0.071)	
M&A*EMU						-0.244 (0.679)
M&A*Developed						-1.117 (0.019)
M&A*Large						3.168 (0.671)
M&A*Northwest						-1.716*** (0.003)
GDP Growth t-1		0.070 (0.438)	0.115 (0.155)	0.137 (0.109)	0.065 (8.449)	0.119 (0.174)
Observations:		1134	1134	1134	1134	1134
D.-W. Stat		0.101901	0.077	0.098	0.108	0.149
R ²		0.439	0.552	0.503	0.446	0.477
Adj. R ²		0.426	0.541	0.490	0.431	0.463
Period fixed effects		Yes	Yes	Yes	Yes	Yes

Table X: Estimation results: Full Country Sample

*, **, *** denotes significance at the 10%, 5% and 1% level respectively

P-Values in parentheses

Table 24: Estimated period fixed effects coefficients

Dependent Variable: GDP Growth					
Year	(1)	(2)	(3)	(4)	(5)
1997	0.735	0.777	0.767	0.761	0.757
1998	0.174	0.214	0.215	0.210	0.190
1999	0.710	0.743	0.738	0.718	0.749
2000	0.424	0.445	0.454	0.430	0.458
2001	-0.023	0.005	-0.011	-0.029	-0.018
2002	0.123	0.149	0.120	0.117	0.111
2003	0.319	0.345	0.316	0.316	0.327
2004	0.416	0.445	0.415	0.423	0.408
2005	0.420	0.460	0.421	0.435	0.425
2006	0.648	0.669	0.642	0.659	0.650
2007	0.544	0.540	0.531	0.550	0.561
2008	-1.075	-1.076	-1.095	-1.074	-1.041
2009	-0.829	-0.849	-0.854	-0.840	-0.820
2010	0.223	0.210	0.198	0.213	0.213
2011	-0.088	-0.108	-0.112	-0.098	-0.102
2012	-0.354	-0.358	-0.334	-0.363	-0.375
2013	0.074	0.075	0.097	0.066	0.059
2014	0.384	0.371	0.387	0.376	0.361
2015	0.566	0.572	0.570	0.567	0.577

Table 24: Estimated period fixed effects coefficients

Dependent Variable: Consumer Price Index					
Year	(1)	(2)	(3)	(4)	(5)
1997	1.158	1.268	1.147	1.461	1.223
1998	0.890	0.985	0.879	1.153	0.932
1999	1.313	1.381	1.315	1.390	1.437
2000	2.550	2.575	2.533	2.584	2.619
2001	2.871	2.886	2.853	2.826	2.907
2002	2.050	2.062	2.022	2.061	2.101
2003	1.682	1.692	1.641	1.715	1.669
2004	1.704	1.716	1.647	1.758	1.698
2005	1.824	1.833	1.750	1.890	1.814
2006	2.118	2.107	2.031	2.147	2.113
2007	2.738	2.688	2.660	2.746	2.698
2008	4.133	4.081	4.092	4.131	4.054
2009	0.332	0.304	0.381	0.289	0.329
2010	1.571	1.568	1.590	1.528	1.573
2011	3.039	3.068	3.126	3.022	3.073
2012	2.451	2.550	2.580	2.453	2.474
2013	0.867	0.924	0.916	0.888	0.889
2014	0.183	0.177	0.212	0.190	0.154
2015	-0.134	-0.126	-0.151	-0.129	-0.128

Table 25: Estimated period fixed effects coefficients

Dependent Variable: Unit Labor Costs					
Year	(1)	(2)	(3)	(4)	(5)
1997	-0.678	-0.687	-0.659	-0.639	-0.708
1998	-0.245	-0.251	-0.225	-0.218	-0.259
1999	-0.392	-0.397	-0.379	-0.382	-0.408
2000	-0.060	-0.062	-0.045	-0.058	-0.087
2001	0.131	0.118	0.138	0.128	0.118
2002	-0.034	-0.049	-0.030	-0.013	-0.010
2003	-0.194	-0.210	-0.190	-0.168	-0.199
2004	-0.378	-0.396	-0.376	-0.371	-0.364
2005	-0.062	-0.086	-0.058	-0.066	-0.058
2006	-0.229	-0.245	-0.227	-0.243	-0.225
2007	0.177	0.170	0.179	0.163	0.171
2008	1.083	1.075	1.082	1.074	1.059
2009	-0.100	-0.092	-0.101	-0.130	-0.096
2010	-0.768	-0.760	-0.770	-0.775	-0.753
2011	-0.074	-0.053	-0.068	-0.055	-0.055
2012	0.144	0.164	0.149	0.167	0.161
2013	-0.588	-0.578	-0.582	-0.559	-0.572
2014	-0.545	-0.535	-0.545	-0.554	-0.518
2015	-0.744	-0.745	-0.743	-0.740	-0.750

Table 27: Estimated period fixed effects coefficients

Dependent Variable: Unemployment rate					
Year	(1)	(2)	(3)	(4)	(5)
1997	0.339	0.614	0.169	0.987	0.841
1998	0.664	0.446	0.379	0.942	0.863
1999	0.545	0.318	0.383	0.648	0.537
2000	-0.238	-0.715	-0.413	-0.134	-0.368
2001	-0.649	-0.914	-0.604	-0.739	-0.581
2002	-0.889	-0.975	-0.715	-0.822	-0.841
2003	-0.237	-0.369	-0.077	-0.134	-0.295
2004	-0.247	-0.408	-0.136	-0.125	-0.359
2005	-0.146	-0.443	-0.172	-0.025	-0.340
2006	-0.898	-1.155	-0.856	-0.864	-1.159
2007	-1.787	-1.957	-1.681	-1.783	-1.947
2008	-1.846	-2.121	-1.651	-1.852	-2.131
2009	-0.429	-0.422	-0.108	-0.498	-0.577
2010	-0.036	0.058	0.161	-0.102	-0.006
2011	-0.749	-0.589	-0.729	-0.759	-0.721
2012	-1.329	-0.939	-1.677	-1.296	-1.249
2013	1.033	1.235	0.662	1.108	1.015
2014	1.056	1.076	0.960	1.088	1.008
2015	0.644	0.542	0.510	0.651	0.496

7. Bibliography

- Adam, K., Jappelli, T., Menichini, A. & Padula, M. M. P., 2002. The evolution of capital market integration in the European Union. *Centre for studies in economics and finance (CSEF)*.
- Anon., 1993. The legal determinants of external finance. *The Economist*, 141(2), pp. 189-213.
- Archick, K., 2017. The European Union: Questions and Answers. *Congressional research service*, Issue February.
- Arnold, M. & Fleming, S., 2015. US banks plan ahead for UK exit from EU. *Financial Times*, 17 August.
- Aslett, K. & Caporaso, J., 2016. *Breaking up is hard to do: Why the eurozone will survive*, Washington: Department of political science, University of Washington.
- Baale, L. et al., 2004. Measuring financial integration in the Euro Area. *Occasional Paper Series ECB*, Volume 14, pp. 12-15.
- Barrel, R. et al., 2008. The Impact of EMU on growth and employment. *National Institute of Economic and Social Research*.
- Buch, C., 2000. Financial Market Integration in the US: Lessons for Europe?. *Kiel Working Paper*, 1004(Kiel Institute of World Economics).
- Cashin, P., Kumar, M. & McDermott, J., 1995. International Integration of Equity Markets and Contagion Effects. *IMF Research and Middle East Departments*.
- Charlotte, R., 2016. *Pound drops to Lowest since 1985 as Angst builds over Brexit*, London: Bloomberg Markets.
- Claessens, S. & Schmukler, S., 2007. International financial integration through equity markets: Which firms from which countries go global?. *Journal of international money and finance*, Issue IMF, pp. 788-813.
- de Guevara, J. F., Maudos, J. & Pérez, F., 2007. Integration and competition in the European financial markets. *Journal of international money and finance*, Issue 26, pp. 26-45.
- De Vries, C. & Van Marle, B., 2015. QE geen zichtbaar effect op economisch herstel in Europa. *ESB*, 2 December.
- Drabek, Z. & Brada, J., 1998. Exchange rate regemines and the stability of trade policy in transition economies. *World Trade Organization: Economic research and analysis division*, Volume Arizona state university.
- Dunkley, E., 2016. EBA says all banks should face minimum leverage ratio. *Financial Times*, 3 August.
- Edison, H., Levine, R., Ricci, L. & Slok, T., 2002. International financial integration and economic growth. *Journal of Internatioanl Money and Finance*, pp. 749-776.

- Edison, H., Levine, R. & Slok, T., 2002. International financial integration and economic growth. *Journal of international economics*, XXI(6), pp. 749-776.
- European Commission, 2016. *ec.europa.eu*. [En ligne]
Available at: http://ec.europa.eu/economy_finance/euro/index_en.htm
- European Commission, 2016. *General Policy on banking and finance*, Frankfurt: s.n.
- Friedrich, C., Schnabel, I. & Zettelmeyer, J., 2010. Financial integration and growth - IS emerging Europe different?. *ERBD*, Volume 123.
- FT, 2016. Outright Monetary Transactions (OMT) in the news. *The Financial Times* .
- Gaspar, V., Hartmann, P. & Sleijpen, O., 2002. The transformation of the European Financial System. *Second ECB Central Banking Conference*.
- GFCI, 2016. *GFCI 19 the Overal Rankings*, New York: LongFinance.net.
- Goldschmidt, R., 1969. Financial Structure and Economic Growth. *Yale University press*.
- Gopinath, G., 2014. Should the ECB buy government bonds?. *World Economic Forum*, 4 November.
- Grauwe, P. d., 2012. The ECB was right to intervene as lender of last resort, but structural reforms are still needed to save the Eurozone. *EUROPP, LSE*, 12 September.
- Gregorio, J. d., 1999. Financial Integration, financial development and economic growth. *Estudios de Economía*, Volume II, pp. 137-161.
- Guiso, L., Jappelli, T., Padula, M. & Pagano, M., 2004. EU finance and growth. *Economic Policy*.
- Gur, N., 2015. Financial Integration, Financial Dependence and Employment Growth. *International Journal of Economics and Financial Issues*, 5(2), pp. 493-500.
- Harrison, E., 2008. Soros call credit crisis the worst since '29. *Credit Writedowns*, 20 May.
- Henrekson, M., torstensson, J. & Torstensson, R., 1997. Growth effects of European integration. *European Economic Review*, Volume 41, pp. 1537-1557.
- Henry, P., 2000. Stock Market Liberalization, economic reform, and emerging market equity prices. *Journal of Finance*, II(55), pp. 529-564.
- HM Treasury, 2016. HM Treasury analysis: The Long-Term Economic Impact of EU Membership and the Alternatives. *UK Government*.
- Isard, P., 1977. How Far Can We Push the "law of one price". *The American Economic Review*, 67(5), pp. 942-948.
- kalemli-Ozcan, S., Sorensen, B. & Yosha, O., 2001. Economic integration, industrial specialization, and the asymmetry of macroeconomic fluctuations. *Journal of international economics*, 55(1), pp. 107-137.
- Lane, P. & Milesi-Ferretti, G. M., 2003. International Financial integration. *IMF staff papers*, 50(Special Issue).

- Lannoo, K., 2016. EU financial market access after Brexit. *Spring - InterEconomics*.
- Lannoo, K., 2016. EU Financial Market Access After Brexit. *Leibniz Information Centre for Economics*, pp. 1-5.
- Loutschina, E. & Strahan, P., 2011. Financial Integration, Housing and Economic Volatility. *Journal of Financial Economics*, 115((1)).
- Masten, A. B., Coricelli, F. & Masten, I., 2008. Non-linear growth effects of financial development: Does financial integration matter?. *Journal of international money and finance*.
- Maudos, J. & de Guevara, J. F., 2015. The economic impact of European financial integration: the importance of the banking union. *The Spanish review of Financial Economics*, Volume 13, pp. 11-19.
- Mendoza, E., Quadrini, V. & Rios-Rull, J.-V., 2007. Financial Integration, Financial Deepness and Global Imbalances. *National Bureau of Economic Research*, Volume NBER WORKING PAPER SERIES.
- Monfort & Phillippe, 2008. Convergence of EU regions measures and evolution. *Directorate-General for Regional Policy*.
- NEWS 24, 2016. From Grexit to Brexit: Eurosceptics claim their -exit. *News24*, 27 June.
- OECD, 2017. *OECD Data*. [En ligne]
Available at: <https://data.oecd.org/natincome/value-added-by-activity.htm>
[Accès le 10 February 2017].
- Peschel, K., 1992. European Integration and Regional Development in Northern Europe. *Institut für regionalforschung*, 26(4), pp. 387-397.
- Prasad, E., Rogoff, K., Wei, S. & Kose, M., 2003. Effects of financial globalization on developing countries: Some empirical evidence. *The Centre de Referencia d'Economia Analitica*.
- Reuters, 2016. World stocks tumble as Britain votes for EU exit. *Reuters Business News*, 24 June.
- Roaf, J., Atoyán, R., Joshi, B. & Krogulski, K., 2014. 25 Years of Transition Post-Communist Europe and the IMF. *Regional Economic Issues Special Report*.
- Sonderman, D., 2014. Productivity in the Euro Area: Any evidence of convergence?. *European Central Bank*, pp. 999-1027.
- Vo, X. & Daly, K., 2004. The relationships between net private capital flows and economic growth in emerging Asian economies. *International Business Research Conference - World Business Institute*.
- Vo, X. V. & Daly, K. J., 2007. The determinants of international financial integration. *Global Finance Journal*, Issue 18, pp. 228-250.

