LUISS

Department
of Economics and Finance

Course of Market Law and Regulation

The Capital Markets Union and Stock Exchange integration in Europe: A case study on Euronext Lisbon

Professor Carmine Di Noia
SUPERVISOR

Professor Paola Lucantoni
CO-SUPERVISOR

Chiara Natali
CANDIDATE

Academic Year 2020/2021

I would like to thank the following people, without whom I would not have been able to complete this thesis. Professor Carmine Di Noia and Professor Paola Lucantoni for the support and guidance during the creation of the thesis. A special thanks is for Professor Alessandra Balbo whose contribution was essential for the creation of the project and the delivery of it. Additional thanks are for Professor Paolo Santucci de Magistris, for the econometric support during the work. My biggest thanks are for my family, for all the support, patience and love you have shown me through these years of studies and of experiences, I know that it was not always easy. For my friends and all the person that in these years were part of my life, thanks so much, without you I would never reach such a goal. During these years I have met many different people and all of them need a special thanks; the person I am is the result of all of you. Thanks to all the Italian friends from the Cà Foscari University and Luiss University, the study periods together were hard, but we shared also unforgettable moments. Thanks moreover to all my international friends from my Erasmus in Frankfurt and QTEM in Tilburg and Porto; you made and still make me feel home around the world; all of you will be part of me for the rest of my life.

Abstract

The thesis analyses the Capital Markets Union project under the point of view of stock markets harmonisation. The Capital Markets Union is a plan to create a single market for capitals in the European Union. The aim is to get resources, in form of investment and savings, flowing across the EU to benefit consumers, investors and companies, regardless to whatever they are located. Nonetheless the project, launched in 2015, today is still characterized by a high degree of uncertainty as regard its structure, management, and regulation. Moreover, in the present scenario, capital markets in EU remain fragmentated. The thesis, after an analysis of the Capital Markets Union project and theoretical pros and cons, focus on exchanges, above all equity markets, playing a central role in the creation of the EU project, and in the integration of capital markets.

The research looks at the Capital Markets Union under the point of view of a harmonized conglomeration of exchanges, trying to test some hypothesis by an econometric analysis. Although the high number of studies on the consequences of the Capital Markets Union from a theorical point of view, there are in fact few empirical investigations on such a topic, due to the complexity of the CMU project.

Euronext is taken as empirical prototype of the Capital Markets Union, and the analysis further concentrates on Euronext-Lisbon merger in Euronext Group to assess the responses of domestic firms experiencing the entrance in a harmonized international environment provided by Euronext.

The thesis, starting from the work of Ulf Nielsson of 2008, empirically tests the consequences of the merger between Euronext and Bolsa de Valores de Lisboa e Porto in 2002 on different Portuguese firms, assessing the heterogeneity in companies' responses based on their individual characteristics, differentiating for big companies, firms experiencing foreign exposure and profitable firms.

The econometric analysis confirms the results of Nielson on the relevance of the firm's size on the liquidity, bigger firms are in fact differently affected by the creation of an international and harmonised exchange.

Nonetheless, since the number of observations is not balanced between the pre-merger and post-merger event, the results of this investigations are not fully comparable with the Nielson's one, due also to multicollinearity problems. To solve this issue, the thesis explores some changes in methodology, not only working on dummy variables, but also considering the time variation of the different variables across years.

This methodology, based on panel data, could be also an interesting approach to test the more recent mergers of Euronext Group, such as the Borsa Italiana one in 2021.

The thesis finally tries to analyse some issues related to governance, supervision, and financial stability of the Capital Markets Union, making some hypothesis on the future supervisory architecture of it.

Index

Introduction

The importance of capital markets in the European scenario is increasing in the recent years.

By comparison with the US market, the European Union system of financing remains grounded on a strong banking base source of financing. The importance in the development of an alternative source of financing was underlined by the European Union, that in 2015 starts the creation of a new project, able to create a resilient and strong alternative source of financing for EU citizens, firms, and investors: Capital Markets Union (CMU).

The importance of this project was not only based on the creation of a complement of the Banking Union, that still represents a fundamental scope of the CMU, but also on some important features characterising a resilient and developed capital markets for the EU as single body and for the Member States. The presence of a strong capital market per se in the context of a State allows the increase of financing sources for companies, and the opportunities for the single investors in the creation of extra profit and decrease of the risk connected with a single-investment project.

Moreover, the increase in the firms and companies operating in the market has a positive impact on the liquidity of the market itself, and on the attractiveness and competitiveness of the National State. This results in a general economic growth for the State and finally in the increase of its the economic wealth.

Looking at capital markets from an EU perspective, the scenario characterizes by a high level of diversification in capital markets across States, that diversify as concern regulations, mechanisms, governance, development level and in the actual number of companies that use this channel to rise capital.

The creation of the Capital Market Union aims to foster the harmonisation of Member States in the field of capital markets, increasing their competitiveness at global level, their interaction, development, and finally economic growth.

The present need of the Capital Markets Union is moreover supported by the need for a fast and reliable recover of the European Union from the Covid-19 pandemic.

The banking system, although its significant effort, due to the high regulatory constraints and stability measures, cannot support an efficient recover of all the Member States, companies, and citizens.

The need of the Capital Markets Union is today even higher than before, and new wave of enthusiasm in its creation was delivered by the existing EU Commission in 2020 with a new Action Plan.

Although all purposes and efforts implemented by the European Union in these years, the CMU is still an ongoing project. This complexity led to many questions, and many potential future scenarios in the creation of the Capital Markets Union.

This thesis analyses the CMU under the point of view of the integration of stock exchanges. The role of exchanges, on which this thesis is grounded, experienced a remarkably high number of transformations in the last decades. In particular, the governance and managing of these fundamental structures in the markets for capital was at the base of a high number of revolutions. To be underlined, it is the transformation of exchanges from a not-for-profit organisation to for-profit-companies following the process usually described as “demutualisation”.

The existing scenario presents exchanges as companies that, in many cases, are listed in their own trading system, leading to many issues related to the governance and surveillance of these entities.

This thesis used as prototype of the Capital Markets Union a conglomeration of exchanges, looking at its structure as a harmonised system of them. Euronext Group is taken as prototype of CMU, and an analysis on the Portuguese capital market is conducted, in order to access the possible consequences in the joining of one Member State to the Capital Markets Union. The fundamental idea is to evaluate the responses of the companies to the merger and investigate if there are particular firm's characteristics that allow companies to benefit more than others from a harmonised international environment system of exchanges.

The results of the empirical research will deliver a possible new method for the evaluation of the creation of the Capital Markets Union, looking at its pros and cons from a firm's point of view and looking at the differences and equalities in the different European States.

It has to be pointed out that the vision of the Capital Markets Union as a harmonised system of exchanges is not the only one, and different proposes will be provided at the end of the dissertation in order to explore different possibilities in the structure, control and regulation of the Capital Markets Union.

The thesis will firstly present the Capital Markets Union project exploring its historical background and its theoretical benefit and problems. Moreover, the present situation of integration in the field of capital markets across European Countries is examined to understand the high degree of fragmentation in markets that the European Union is experiencing today.

After that, a presentation of the evolution in the role of stock exchanges is provided to show the fundamental bases and concepts for the understanding of the critical role that this market structures are playing today, and why the vision of a harmonised system of exchanges is presented as prototype of the Capital Markets Union.

Since a theory needs an empirical test to be supported and confirmed, Euronext Group is taken as practical example, looking at it as empirical prototype of the Capital Markets Union. Therefore, in the third chapter the structure, functioning and historical background of the Group are presented. The thesis focuses the attention on the consequences of the entrance of one Member States in the Capital Markets Union, and as consequence the Portuguese capital market is taken as reference State in the Euronext Group. To correctly access the situation and consequences of the merger of this country to Euronext and the creation of Euronext-Lisbon, a general presentation of the features, evolution and characteristics of the Portuguese stock exchange are presented in the third chapter.

In the fourth chapter the actual empirical analysis is performed. A first analysis is performed on the correlation of the indexes of the different participants to Euronext Group, focusing the attention of the Portuguese market index, to verify if the Portuguese market increase its correlation with all the other members of the group after the merger. Then, an empirical investigation, looking for the heterogeneity of Portuguese companies' responses to the merger of the Lisbon stock exchange to Euronext is conducted.

Starting from the job of Ulf Nielsson[1], an econometric analysis has been performed to evaluate the impact of the creation of Euronext-Lisbon on the stock liquidity of different companies in the Portuguese equity market, by taking in consideration the different firms' characteristics, such as size, foreign exposure, and productivity. The analysis is based on a panel data sample from 2001 to 2019 of 22 Portuguese companies in Euronext Lisbon, looking if companies with higher market capitalization, productivity, and foreign exposure benefit more or less from an internationally environment, provided by the Euronext Group.

The empirical research is conducted not only on the entire period but also on a smaller sample with different time length, to properly explore the stability of the results.

The thesis proposes an evaluation method that can be replicated and further implemented in the future to analyse other National markets mergers in Euronext Group, and explore the consequences of the creation of the Capital Markets Union on different States and companies. In particular, looking at the new acquisition of Borsa Italiana by Euronext in 2021, the impact of the merger could be explored in the next years.

A final reflection is then proposed on the possible alternative architectures of the Capital Markets Union.

Still looking at exchanges as main element of the project, the dissertation looks at several issues concerning the structure of the Capital Markets Union, exchanges, governance, ownership, surveillance, and stability role of the CMU in the European Union. In addition, a reflection is finally delivered about the regulatory and supervision structure of this EU project. The role ESMA requires a revision and implementation in line with the creation of the Capital Markets Union.

Is the Capital Markets Union today a worthy project? Theoretically yes, but the still complex structure rises many questions, and asks for additional empirical research.

Chapter 1

Capital Markets Union project

1.1 An ambitious project

From the creation of the European Union as economic entity, one of the most relevant objectives of the EU was the creation and efficient functioning of the internal markets among the EU Member States.

The efforts of the European Union developed in the creation of the EU as economic entity, followed by the Monetary Union and the Banking Union as last achievements of a long process of harmonisation between Member States.

The capital markets field nevertheless remained at a later stage of development in the big plan of unification and integration of the European Union, presenting even today a high degree of fragmentation across countries. This fact contributes to the creation of an environment in which citizens of the EU and businesses cannot profit from a deep, competitive, efficient, and reliable financing source that can be guaranteed by capital markets[1].

Across the years, much EU effort has been spent to find a suitable solution to the absence of a developed capital market, culminating with the project of the European Capital Markets Union (CMU).

"We have to complement the new European rules for banks with a Capital Markets Union[2]" was the sentence pronounced by the European Commission President Juncker, giving born to one of the biggest harmonisation processes in the European Union. The objective of the Capital Markets Union was the achievement of a higher degree of harmonisation and integration of capital markets across Member States, supporting the growth of the EU as single body and diversifying the financing sources for EU companies.

Nevertheless, the project of the Capital Markets Union today can still not find a definitive architecture in the EU structure and the initial impetus in its creation get modified in the last years.

The EU has struggled for decades to make its capital markets work as one, but today for large degree we still have 27 distinct capital markets, different in size and composition[3].

Despite that, the historical moment brings questions about the destiny of the European Union and the CMU: after Brexit, after the Covid-19 pandemic, after the emerging at national level of movements asking for an increase of the sovereignty powers of each Member State. The present situation requests today even more than before an efficient capital market, able to: convey financial resources to companies; allow the recovery of Europe after the Covid-19 pandemic; foster a green and digital transformation of the EU[4].

Neither Member State, nor a group of Member States can manage the current crisis, Brexit, and the recovery alone[5].

---

[1] European Commission, 2020. What is the Capital Markets Union? General information on the objectives of the Capital Markets Union. EU commission website.

[2] Juncker, J.C., Candidate for President of the European Commission speech, 15 July 2014. A new start for Europe: Opening statement in the European Parliament plenary session. Strasburg.

[3] European Commission, June 2020. A new vision for Europe's capital markets: Final Report of the High-Level Forum on the Capital Markets Union. p. 2.

[4] European Commission, 2020. What is the capital markets union? General information on the objectives of the capital markets union. EU commission website.

[5] European Commission, June 2020. A new vision for Europe's capital markets: Final Report of the High-Level Forum on the Capital Markets Union. p. 5.

The project is ambitious and a general agreement on the need of the Capital Markets Union in Europe had been achieved across countries, but today the path and the structure to adopt in order to achieve it is still unclear.

Some achievements have been fulfilled, but progress on some specific topics had been slow. Important barriers, driven by cultural, historical background are still present in some fundamental areas as supervision, taxation, and insolvency law[6].

The creation of ESMA facilitated in the past years a harmonisation of markets' regulations across Member States, but as regard the creation of the Capital Markets Union, the EU still faces the problem of combining National States' interests and the need for an integrated and efficient capital market in Europe.

Today a change is needed. Structural changes are not only a wish but a real need both for the EU and for companies. A well-developed plan for the creation of a European market for capitals has to be adopted in order to ensure a long run sustainable prospective for Europe, and to support companies that today are highly dependent on a banking sector already stressed by the present events.

The new action plan for the creation of the Capital Markets Union had been published in June 2020 to booster the present Europe toward a further unification, and recovery, both as single EU body and as single economy from the recent pandemic, as well as a sustainable and digitalized new European Union.

The recent release of the Next Generation EU[7], a recovery instrument for the support of the economy and society due to Covid-19, is just one piece of the big puzzle of measures that must be adopted today to prepare the Europe to face the future challenges. Member States alone tried to face with great efforts the today economic situation, however this is not sufficient. The Capital Markets Union and the harmonisation between capital markets across EU are key objectives today even more then before to face the consequences and damages of the present Covid-19 situation.

Funds for the EU are a need; funds for single States are a necessity; the mobilization of private investment needs to be foster; SMEs need a solid mark for funding; and all the society needs a resilient and inclusive economy.

Following the words of the EU Commission president Ursula Von Del Leyen: "*Let's finally complete the Capital Markets Union*[8]".

1.1.1 The need of developed capital markets

An important question that needs an answer is: why are capital markets so important and why we need a Capital Markets Union?

[6] European Commission, 24 September 2020. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A capital Markets Union for people and business-new action plan. COM (2020) 590 final.

[7] European Commission, 27 May 2020. Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee ff the Regions: Europe's moment: Repair and Prepare for the Next Generation. SWD (2020) 98 final.

[8] European Commission President Ursula Von Del Leyen declaration, 24 September 2020. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A capital Markets Union for people and business-new action plan. COM (2020) 590 final.

First at all, following a simple definition: "*A market is a system where demand and supply meet. A Capital market is thus a market where companies and business enterprises can rise equity or borrow capital, and where these are publicly traded"*[9]; as consequence, is possible to define the capital market as a point of meet.

Markets are places where ideas and projects can meet the necessary resources to be realized and, on the contrary of bank-financing, in the capital market investments face a less restricted environment as regard regulations.

After the crisis of 2008 new regulations have been drawn up for the banks. The carried-out types of investments for banks resulted to be restricted as consequence of the new regulations and procedures.

The capital market offers a possible financing to each type of project; the only "limit" is the investor risk-appetite, that distinguish projects with high liquidity, easily financed, to less liquid one.

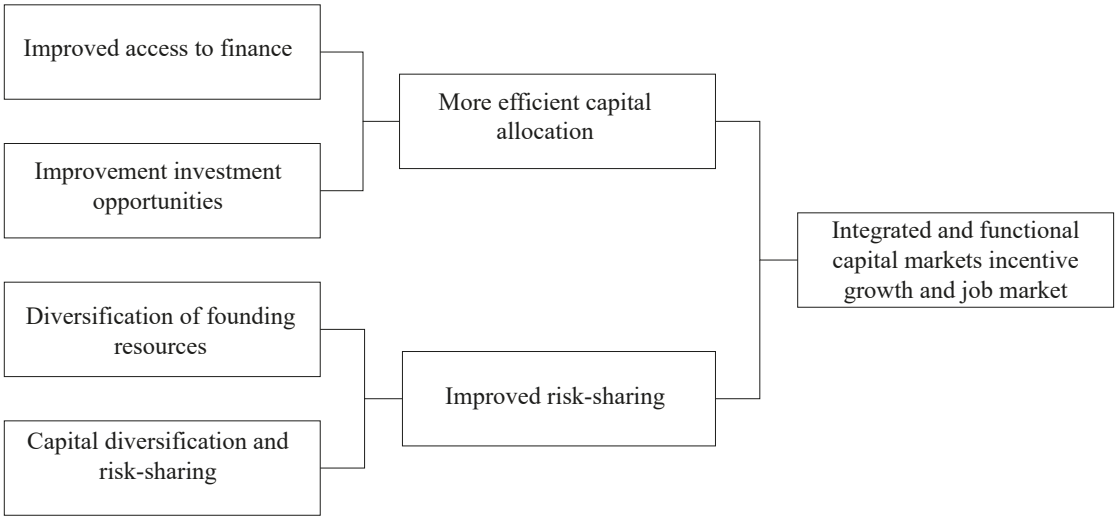
Furthermore, a deeper and highly developed capital market increases the pass-through process of monetary policies; reduces capital costs increasing competition between lender; allows diversification in the investments both for investorsand borrower; allows for mitigation of risk and increases the risk-profit appetite of investors.

A highly developed, connected, and deep capital market is exactly the once initially proposed by the First Action Plan of 2015 for the creation of the Capital Markets Union.

A small summary of the economic benefits of an integrated and well-functioning capital market is provided by the European Commission working document in Figure 1.

Growth and job markets are incentivized by an integrated and well-functioning capital market, able from one side to allocate efficiently capitals, improving access to a different source of financing and improving investment opportunities for households and investors; and from the other side able to improve the risk-sharing process both for companies and investors, that diversify their source of future returns.

Figure 1: Economic benefits of a well-functioning capital market.



Source 1: European Commission. Commission staff working paper: Economic Analysis. Accompanying the document: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Action Plan on Building a Capital Markets Union. September 2015. p. 9.

[9] Veil, R. ed., 2017. European capital markets law. Bloomsbury Publishing. Chap. 2, Para. 7, p. 103.

The Capital Markets Union can be seen also with the eyes of citizens as a way to build a resilient economy and inclusive society. Changes and investments in the society need capitals to be realized, and harmonized capital markets can allocate capitals in an efficient and effective way, supporting growth, development, and well-being in the different States. Following a official European Union's declaration, as combination of the EU Parliament, Commission and Council: "*The CMU aims to put capital markets at the service of people, offering them both sustainable investment opportunities and strong investor protection*[10]."

1.1.2 The long race of the Capital Markets Union

The 2008 Crises revealed to be a revaluation point in the history of the European Union, linked with the past unexplored concept of systematic risk's increase carried out by a further, but not adequately managed, integration. The financial and economic stability reveals to be crucial for the outliving of the European Union, at that time dealing with the financial crisis and the following economic instability.

The globalization and the structural changes of the financial system, as the crises demonstrate, were not co-ordinated with the European Union's instruments of supervision and legislation, leading to a fragmented and weak EU under various aspects.

The banking sector was promptly restructured introducing the so-called Banking Union and the Single Supervision Mechanism (SSM), but the building process of the Capital Markets Union was a little be bumpier.

Nevertheless, the importance in the development of both the source of financing, banking-base and market-based, should not be forgotten. Diversification in financing is a well-known topic in economic literature and, following the studies of Pagano et al[11] and Langfield and Pagano[12]is possible to affirm that the presence of both a bank and market source funding can be profitable and desirable in Europe.

In particular, the study of Pagano et al[13], analysed the eradicate mechanism of bank-financing as main source in Europe, looking at the high degree of concentration of financial requests in this sector, and suggesting the use of alternative mechanisms of financing for companies and citizens. The second study, Langfield and Pagano[14], on the contrary looked at the banking system relationship with the economic growth and systematic risk in Europe. Interesting was the finding of an amplification mechanism of the relationship between the banking-sector's size, the economic growth, and the systematic risk level. To be specific, the big size of the banking sector increases the systematic risk of Europe and decreases its economic growth.

[10] European Commission, 24 September 2020. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A capital Markets Union for people and business-new action plan. COM (2020) 590 final.

[11] Pagano, M., S.Langfield, V. Acharya, A.Boot, M. Brunnermeier, C. Buch, M. Hellwig, A. Sapir, I. Van den Burg, 2014. Is Europe overbanked?. Report 4, European systematic risk board's advisory scientific committee.

[12] Langfield, S. and Pagano, M., 2016. Bank bias in Europe: effects on systemic risk and growth. Economic Policy, 31(85), pp. 51-106.

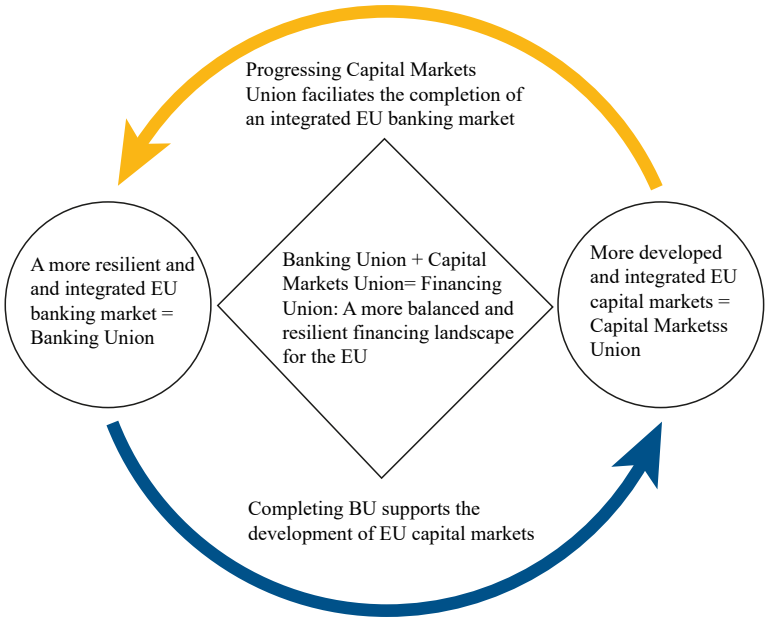
[13] Pagano, M., S.Langfield, V. Acharya, A.Boot, M. Brunnermeier, C. Buch, M. Hellwig, A. Sapir, I. Van den Burg, 2014. Is Europe overbanked?. Report 4, European systematic risk board's advisory scientific committee.

[14] Langfield, S. and Pagano, M., 2016. Bank bias in Europe: effects on systemic risk and growth. Economic Policy, 31(85), pp. 51-106.

The complementarity of the Banking Union and the Capital Markets Union plays a fundamental role in the design of a resilient and efficient financial European Union.

As shown in Figure 2 the Financing Union searched by the European Union can be achieved only through the

Figure 2: A Financing Union for the EU.



Source 2: Association for Financial Markets in Europe (AFME). Creating an integrated Financing Union for the EU: The important role of Banking and Capital Markets Unions. April 2019. p. 3.

combination of the Banking and Capital Markets Union, that working simultaneously, can guarantee a stable, diversified, efficient and developed European Union.

After a refund stabilization of the economic situation, and the creation of the Banking Union the goal for a further integration on capital markets was at the first stages in the EU objectives.

The Capital Markets Union was seen by the European Commission as the "*new frontier of the Europe's single market*"[15]. The ambitious project of integration of the capital markets across EU started in February 2015 with the publishing of the green paper on the Capital Markets Union[16](CMU) by the EU Commission.

After some months, in September 2015, the First Action Plan[17] for the creationof the CMU was published. Following the ECB declaration: "*The CMU is the natural complement to the Banking Union; it will strengthen the European Market Union (EMU) and deepen the Single Market. It will support the smooth and homogeneous transmission of monetary policy, enhance funding sources and investment opportunities for firms and households, and help foster financial stability by, inter alia, creating deeper, more liquid and new financial markets, thereby increasing the resilience of the financial system and the economy at large. The CMU will also foster more cross-border private financial risk sharing, which will*

[15] Quaglia, L., Howarth, D. and Liebe, M., 2016. The Political Economy of European Capital Markets Union. Journal of Common Market Studies, 54, pp. 185-203.

[16] European Commission, 18 February 2015. Green paper: Building a Capital Markets Union. SWD(2015) 13 final.

[17] European Commission, September 2015. Commission staff working paper: Economic Analysis. Accompanying the document: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Action Plan on Building a Capital Markets Union. COM(2015) 468 final, SWD(2015) 184 final.

support the functioning of EMU by smoothing the effects of economic cycles."[18]

Efforts for the creation of a single market for capitals comprehend the Treaty of Rome in 1957 and the Maastricht Treaty of 1999 achieving the free movement of capitals across Europe. Nevertheless, the process for the creation of a single market for capital slow-down in the following years, and a long race for the creation of the Capital Markets Union starts.

Since 2015, the process for the creation of the Capital Markets Union achieved may goals and pass many important turning points. Figure 3 underlines the main steps from the First Action Plan till today in the creation of the Capital Markets Union.

Figure 3: The long race of the Capital Markets Union.

September 2015

The Commission adopted the First CMU Action Plan.

April 2016

The Commission took stock of the progress made in the first six months of implementation of the CMU action plan in its first status report.

September 2016

The European Commission adopted a communication setting out the next steps to accelerate the completion of the CMU.

June 2017

The Commission mid-term review updated and complemented the CMU action plan by strengthening existing actions and introducing new measures in response to evolving priorities and challenges.

2019

The Commission published a progress report showing that the Commission has tabled all the legislative proposals it committed to in the CMU action plan and mid-term review.
Working towards a capital markets union remains a top priority of the Von Der Leyen Commission and is part of Executive Vice President Valdis Dombrovskis' mandate for an economy that works for people.

2020

To feed into its work on future CMU policies, the Commission brought together 28 highly experienced industry executives and top international experts and scholars in the High Level Forum on the CMU.

In June 2020 the Forum published its final report with 17 recommendations to the Commission on the way forward to completing CMU.

24 September 2020

The Commission adopted its New Action Plan on the CMU

Source 3: European Commission. What is the capital markets union? General information on the objectives of the capital markets union. 2020. EU Commission website.

[18] European Central Bank (ECB), May 2017. Financial Integration in Europe. p.33

The Capital Markets Union formally starts its race under the umbrella of the reforms of the Juncker EU Commission in 2014. The creation of the CMU was in fact fulfilling the need for a complementary institution to the prior Banking Union; and in 2015 this idea took the form of the First Action Plan.

The CMU is to be considered a fundamental pillar of what remains in the history as Junker-plan, whose objective was the strength of the EU financial system through a series of regulatory and non-regulatory reforms.

The first Action Plan of 2015 formally sets three main objectives:

1. Broaden the sources of financing in Europe towards non-bank financing, by giving a stronger role to capital markets and offer to borrowers and investors a broader set of financial instruments to meet their respective needs [19].
2. Create a deeper Single Market for financial services. Capital markets will be able in fact to benefit from the size effects of the single market; becoming deeper, more liquid, and more competitive, for the benefit of both borrowers and investors.[20]
3. Promote growth and financial stability. By facilitating companies' access to finance, in particular SMEs[21], the CMU will support growth and jobs' creation. At the same time, by promoting more diversified funding channels to the economy, it will help to address possible risks coming from the over-reliance on bank lending and intermediation in the financial system. By diversifying the risks, it will make the whole system more stable and help financial intermediaries granting more funding to the economy[22].

SMEs topic requires a deepen attention of the readers, representing for Europe and important source of growth to be taken in consideration in the creation of an efficient Capital Markets Union. Innovative firms in Europe faced a path of growth from small to medium in the past decade, and more often than not, left the European scenario to find an affordable financing source for a further growth from SME status to big company status. 27 different capital markets revealed to be not able to support their further development[23].

The actions of the First Action Plan were in addition concentrated on six areas of intervention: financing for innovation, raising capital in public markets, facilitating long-term investment, fostering more choice for retailand institutional investors, supporting securitization, reducing barriers to a unified EU capital market.[24] In Figure 4 a small recap of the First Action Plan of 2015 in presented.

---

[19] European Commission, September 2015. Commission staff working paper: Economic Analysis. Accompanying the document: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Action Plan on Building a Capital Markets Union. COM (2015) 468 final, SWD (2015) 184 final.

[20] European Commission, September 2015. Commission staff working paper: Economic Analysis. Accompanying the document: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Action Plan on Building a Capital Markets Union. COM (2015) 468 final, SWD (2015) 184 final

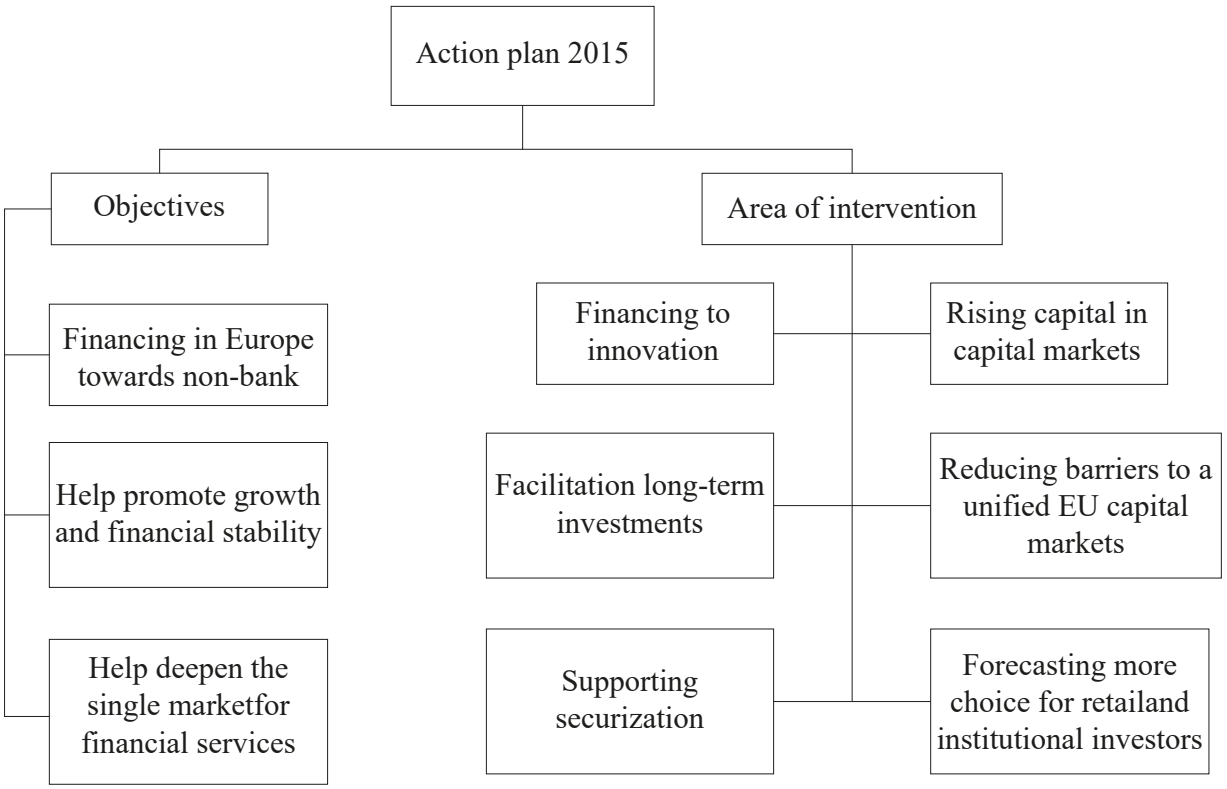
[21] Small and Medium Enterprises

[22] European Commission, September 2015. Commission staff working paper: Economic Analysis. Accompanying the document: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Action Plan on Building a Capital Markets Union. COM (2015) 468 final, SWD (2015) 184 final.

[23] European Commission, June 2020. A new vision for Europe's capital markets: Final Report of the High-Level Forum on the Capital Markets Union. p. 5.

[24] European Commission, September 2015. Commission staff working paper: Economic Analysis. Accompanying the document: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and

Figure 4: Area of interventions and objectives of the First Action Plan of the Capital Markets Union of 2015.



Source 4: European Commission. What is the capital markets union? General information on the objectives of the capital markets union. 2020. EU Commission website

In 2016 the European Commission starts a mid-term evaluation of the work performed in the prior year.

The achievement of the First Action Plan in 2017 comprehends:

- The review of European Venture Capital Core Fund Regulation (EuVECA).
- Some studies on tax incentives for venture capital and business angels.
- The increase in the strength feedback given by banks when declining SME credit applications.
- The modernization of prospectus directive.
- The proposal for a Common Consolidated Corporate tax base (CCCTB).
- The proposal for simple, transparent, and standardized securitization (STS).
- The proposal on preventive restructuring and second chance for entrepreneurs.
- The adjustments of Solvency II calibrations for insurers' infrastructure investments.
- The adjustments on the capital requirement regulation (CRR)
- The calibrations of banks' infrastructure investments
- The consumer financial services action plan[25]

After two years from the First Action Plan, in 2017, the EU Commission proposed a new set of initiatives to ensure the fit of the initial program to the changing market of that years.

The purposes in the creation of the CMU remained equals, but the way to achieve them needed to be implement. Moreover, new challenges had to be faced, asking as consequence to an adaptation of the original project of the CMU. As shown in Table 1, the EU needed to find solutions to a quite high number

the Committee of the Regions: Action Plan on Building a Capital Markets Union. COM (2015) 468 final, SWD (2015) 184 final.

[25] European Commission, June 2017. Factsheet: CMU Mid-term Review.

of problems as the Brexit, the necessity for an increase of supervision of markets, the FinTech evolution, the new focus of markets and society on environmental issues, and the high degree of fragmentation of capital Markets in Europe.

Table 1: The challenges and the solutions of the EU to the new market's scenario of 2017 from a CMU perspective.

CHALLENGES		SOLUTIONS
UK due to depart from the Single Market	→	Strengthen EU-27 capital markets
Supervision and enforcement are uneven across EU	→	Make the supervisory framework more effictive and consistent
FinTech is tranforming capital markets	→	Increase competition and lawor costs for busines-ses and inventors
Europe must face environmental and social challenges	→	Re-engineer the financial system to male invest-ments more sustainable
Not enough long-term investments in businesses and infrastructure	→	Foster investment by insurance companies and pension funds
Capital markets and very diverse across Europe	→	Savers and businesses in all Member States should benefit from capital markets

Source Table 1: European Commission, June 2017. Factsheet: CMU Mid-term Review.

Ten new priority actions were taken in consideration, and three actions from the prior 2015 action plan were advanced26. At the end of 2019 11 out of 13 proposals presented in the Mid-term review and Action Plan had been adopted.[27] Table 2 illustrates the adopted proposals after the Mid-term review distinguishing them from the First Action Plan. The new adopted actions were adapting the Capital Markets Union to the new market's scenario, and at the same time increased the ambitiousness of the project.

[26] European Commission, 8 June 2017. Completing the Capital Markets Union: Building on the first round of achievements. Press release.
[27] European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area.

Table 2: The new priorities of the Capital Markets Union after the Mid-term review.

New priority actions from the Mid-term review	Outstanding actions under the First Action Plan
Strength the powers of European Securities and Markets Authority to promote the effectiveness of consistent supervision across the EU and beyond;	Legislative proposal on a pan-European personal pension product to help people finance their retirement;
Deliver a more proportionate regulatory environment for SME listing on public markets;	Legislative proposal for an EU-framework on covered bonds to help banks finance their lending activity;
Review the prudential treatment of investment firms;	Legislative proposal on securities law to increase legal certainty on securities ownership inthe cross-border context
Assess the case for an EU licensing and passporting framework for FinTech activities.	
Present measures to support secondary markets for non-performing loans (NPLs)	
Explore legislative initiatives to strengthen the ability of secured creditors to recover value from secured loans to corporates and entrepreneurs.	
Ensure follow-up to the recommendations of the High-Level Expert Group on Sustainable Finance;	
Facilitate the cross-border distribution and supervision of UCITS and alternative investment funds (AIFs);	
Provide guidance on existing EU rules for the treatment of cross-border EU investments and an adequate framework for the amicable resolution of investment disputes.	
Propose a comprehensive EU strategy to explore measures to support local and regional capital market development.	

Source Table 2: European Commission. Completing the Capital Markets Union: Building on the first round of achievements. June 2017.

Despite the significant efforts and actions taken in the years from 2017 and 2019, the Capital Markets Union today can still be considered an incomplete and an ongoing project.[28]

The different capital markets in Europe are still fragmentated, and the Coronavirus crises underline the differences across Countries and the need of different source of funding, not supplied only by banks.[29]

The creation of the CMU revealed to be an ambiguous project dealing with a broad number of issues, going beyond the simple creation of a harmonized system of capital markets, dealing with topics as: supervision, taxation, structure of markets, insolvency law, development of national markets, innovative technologies employment and competitiveness across the world.

A step-by-step growth and implementation appeared to be a rational solution in the creation of the CMU, maintaining the flow of changes continuous, but without a sudden overturning of the status quo.

The present economic crisis derived by the coronavirus boosts the need for the creation of the Capital Markets

[28] Sapir, A., Véron, N. and Wolff, G.B., 2018. Making a reality of Europe's Capital Markets Union (No. 2018/07). Bruegel Policy Contribution.

[29] Bhatia, M.A.V., Mitra, M.S., Weber, A., Aiyar, M.S., de Almeida, L.A., Cuervo, C., Santos, M.A.O. and Gudmundsson, T., 2019. A Capital Markets Union for Europe. International Monetary Fund.

Union, for a facilitation of the EU's recovery.

Following the words of the Executive Vice-President of the EU Commission Valdis Dombrovskis: *"The Coronavirus crisis has injected real urgency into our work to create a Capital Markets Union. The strength of our economic recovery will depend crucially on how well our capital markets' function and whether people and businesses can access the investment opportunities and market financing they need. We need to generate massive investments to make the EU economy more sustainable, digital, inclusive, and resilient. Today's Action Plan aims to tackle head-on some of the remaining barriers to a single market for capital."*[30]

In September 2020, the New Action Plan by the European Commission was published, focusing on 3 main pillars[31]:

- Pillar 1: Support a green, digital, inclusive, and resilient economic recovery by making financing more accessible to European companies.
- Pillar 2: Make the EU a safer place for individuals to save and invest in long-term.
- Pillar 3: Integrate national capital markets into a genuine Single Market.

From these 3 main pillars 16 new actions were developed, looking at new measures and objectives of the European Union for the next years. These 16 new actions are presented in Table 3.

[30] European Commission, 24 September 2020. Capital Markets Union: Commission to boost Europe's capital markets. Press release

[31] European Commission, 19 January 2021. What is the Capital Markets Union? Factsheet. p.3

Table 2: The new priorities of the Capital Markets Union after the Mid-term review.

LIST OF NEW CMU ACTIONS		
SMEs	ACTION 1	Establish an EU-wide platform (European Single Access Point) that provides inventros with seamless access to financial and sustainability related compani information.
	ACTION 2	Simplify the listing rules for public markets in order to help small and innovation companies have easier access to funding.
	ACTION 3	Channel more long-term financing to companies and infrastructure projects, in particular those contributing to the objective of smart, susteinable and inclusive growth.
	ACTION 4	Encourage insurers and banks to invest in equity and other long term assets.
	ACTION 5	Assess the merits of a requirement to direct companies to alternative finance providers when rejecting their credit application.
	ACTION 6	Support the provision of credit to European companies and in particular SMEs, through an improved securitization market.
RETAIL	ACTION 7	Improve financial literacy by developing a European financial competence freamwork and incentives for Member States to promote financial education and responsible investing.
	ACTION 8	Build trust of retail investors by reducing informal overload and increase the quality of financial advice. Review the rules related to inducements, investment advice and information disclosure in order to ensure fair advice as well as clear and comparable product information.
	ACTION 9	Help Member States improve pension adequacy in Member States.
SINGLE MARKET	ACTION 10	Lower costs for cross-border investment by simplufying with holding tax procedures.
	ACTION 11	Foster more similar insolvency rules across Memeber States.
	ACTION 12	Enable cross-border shaholders to better exercise their rights.
	ACTION 13	Enhance the cross-border provision of settlement service in the EU.
	ACTION 14	Establish a consolidated source of data about trading conditions across all EU trading venues to foster competition.
	ACTION 15	Strengthen the protection of investments and further facilitate cross-border investments.
	ACTION 16	Enhance the single rulebook for capital markets and foster progress towards supervisory convergence.

Source Table 3: European Commission, 19 January 2021. What is the Capital Markets Union? Factsheet. p.4

The New Action Plan focus its attention on the harmonisation of the different capital markets present in Europe, looking at the creation and stability of the European Union as single element and single market. Moreover, the attention of the European Commission stops on the significant role played by small and medium enterprises in the present EU economy. The movement of SMEs outside European borders, due to the absence of adequate financing, led the EU to implement new measures to attract companies and innovative idea, contributing to the general development and progress of the European Union. The importance of the retailer's sector was moreover underlined in the New Action Plan, looking at the creation and increase of financial knowledge by citizens, increase their confidence in the investment sector, and developing the different pension systems.

Looking back today to the long and not completed path of the EU Capital Markets Union, is possible to declare that progresses were made, but in some controversial areas as taxation, insolvency law and supervision still the European Union faces high and significant barriers[32].

Following the communication of the EU Commission, EU council, the EESC[33] and the EU CoR[34] on the CMU: "*There is no single measure that will complete the CMU. The only way to progress is to move step by step, in all areas where barriers to the free movement of capital still exist. This requires commitment and determination from all parties. Since building the CMU is a gradual process, based on making many small but important changes, it is important not to lose sight of the global CMU vision*.[35]"

[32] European Commission, 24 September 2020. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A Capital Markets Union for people and business-new action plan. COM (2020) 590 final. p.2.
[33] European Economic and Social Committee
[34] EU Committee of Regions
[35] European Commission, 24 September 2020. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A Capital Markets Union for people and business-new action plan. COM (2020) 590 final. p.2.

1.2 Advantages and disadvantages of the Capital Markets Union

The creation of the Capital Markets Union leads to different points of view and considerations about its advantages and downside risks. In this section will be presented both sides of the Capital Markets Union, trying to drive forward the idea that there is not only one side of the coin, but all effects and consequences must be taken in consideration in taking actions, especially the ones involving all the European Union.

1.2.1 Advantages

There is no doubt about the fact that the CMU could be a reliable source of efficiency and improvement both at market level as well as in the increase of "sentiment" of membership of a single EU.

The Home-bias phenomena[36], economic source of inefficiency, can easily be lowered. The creation of the Capital Markets Union can result in the enlarging of the boarders of investments between Member States, and the following increase in the confidence of investors.

A strong equity market, as the one intended to be built by the CMU, can create the prerequisites for the increase of the competitiveness of the European market in the world.

In particular, the European market can have the elements and enough importance to represent a competitive alternative to the US market. As illustrated the further sections, the present EU equity market is very small in comparison to the US equity market. The increase of competitiveness can be seen as a strong incentive to attract capitals and so enlarge the richness and wellness of all the European Union.

An important feature of the present financing structure in Europe is the key role played by the banking sector, being the main source of funding for European citizens.[37]

The significant role of banks in the financing system increases the cost of financing, dependent not only by the interest rate set by the ECB[38] but influenced also by bank specific characteristics, risk, and related country risk level. Higher costs of financing can as consequence decrease the number of applicant firms or households. Another element to consider regarding the bank financing system, is the presence of high regulations to which banks have to comply with, reducing even more the numbers of financing given by banks.[39] The introduction of a strong, developed, and efficient equity market could increase the competitiveness between the two sources of financing, and possibly offer an alternative source of strong financing in case of a crises. Diversification between the two main source of richness for the EU can leads to a higher degree of resistance to sudden shocks provided to the economy. A developed capital market can increase the private risk owning and sharing.

---

[36] Tendency of investor of ignoring foreign investments and their benefits in terms of diversification, opting for local investments. Pownall, G., Vulcheva, M. and Wang, X., 2014. The ability of global stock exchange mechanisms to mitigate home bias: Evidence from Euronext. Management Science, 60(7), pp.1655-1676.

[37] Bhatia, M.A.V., Mitra, M.S., Weber, A., Aiyar, M.S., de Almeida, L.A., Cuervo, C., Santos, M.A.O. and Gudmundsson, T., 2019. A Capital Markets Union for Europe. International Monetary Fund.

[38] European Central Bank.

[39] Admati, A.R., DeMarzo, P.M., Hellwig, M.F. and Pfleiderer, P., 2010. Fallacies, irrelevant facts, and myths in the discussion of capital regulation: Why bank equity is not expensive (Vol. 86). Max Planck Inst. for Research on Collective Goods.

Diversification of investments for households can allow them to better fulfil their needs and profit from their savings. On the public side this leads to the creation of a "cushion" of investors with high economic liquidity and interest in the maintenance of a stable and well-functioning market.

The present structure of capital markets across Member States is quite different, especially as regard their regulations and development.

The creation of the Capital Markets Union can serve as vehicle for a further development and alignment of capital markets across Europe.

National markets can benefit from the example of the other Member States in order to increase their development process and accelerate the use of new technology.

The disintegration of barriers across national markets can result in the elimination of differences not only as regard their development level, but especially as regard regulations, prudential supervision, and insolvency procedures. The harmonisation and development of cross-border regulation will facilitate the integration of capital markets, increasing the confidence of investor in taking investment in other Member States.

The resulting increase in transparency of markets across countries will be beneficial for the comparison between investment and opportunities across States. Companies can be pushed to adopt the same regulations, procedures, and transparency mechanisms for investors, giving them an easier, comparable, and more simple access to the investments. The soundness of investments can be an interesting result and goal in the creation of the Capital Markets Union.

Transparency, as proven by the work of EU in these years, seems to be a particularly important goal to achieve by the European Commission in managing the financial and economic system in Europe. An example of this can be delivered by some very known regulations as the transparency directive[40] and the prospectus directive[41].

Tax rules are another interesting issue in managing and regulating the CMU. It will in fact deal with a common system of taxation at European level, or at least with a harmonisation on investments 'taxes across countries.

Insolvency procedures today are competence of National States, except for banks, that according to certain parameters adopt national insolvency procedure or resolution procedure at European level. The harmonisation of company-insolvency procedures can represent a big improvement[42] in the full harmonisation of the European Union. We have also to remember that company law is not competence of the EU, but legislation in this field remain at National level. The CMU can be a way of approximation of different national legislation or extension of EU competence following the functionalist approach

[40] European Parliament and European Council, 15 December 2004. Directive on the harmonisation of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market and amending Directive 2001/34/EC. Directive EC (2004) 109.

[41] European Parliament and European Council, 4 November 2003. Directive on the prospectus to be published when securities are offered to the public or admitted to trading and amending Directive 2001/34/EC. Directive EC (2003) 71.

[42] International Monetary Fund (IMF), 10 September 2019. A Capital Market Union for Europe: Why It's Needed and How to Get There. IMF Blog

adopted by the European Union in legislating on matter that usually are competence of single Member States. On the contrary of the banking sector in the case of the Capital Markets Union can be taken in considerationthe prioritization of the ability to fail of companies instead of prudential regulations.[43]
All together this package of reforms will encourage participation of households in the capital markets, that today is mostly dominated by public pension funds, public entities, and big companies[44].
An easily visible and predictable consequence of the Capital Markets Union can be seen in the increase in investor confidence and its protection, that is a common base principle in all national laws, European laws, markets, and economy. Investor protection can pass to an umbrella surveillance at European level.
A final consideration to be made is about the possible benefit of the CMU regard the labour environment. The creation of the Capital Markets Union will lead to the need of specific coordinators and specialist, able to deal with cross-border actions. This on overall will lead to the increase of jobs offers on European scale.

1.2.2 Disadvantages

The project of the Capital Markets Union creates many doubts and question marks about its structure and downside risks.
If from one prospective a full harmonisation is a desirable goal to be achieved, as the Brexit case prove, we have to consider also the different wills of Member States and the unanswered doubts about the effects that a common or at least European managed capital market can generate.
Many studies show that the harmonisation and the intercorrelation of different capital markets can generate an increase in the systematic risk of the entire system[45]. This problem from the bank perspective was historically solved by the creation of a set of prudential regulations. In case of capital markets, where the market deal with economic entities whose failure cannot generate negative externalities as the ones of case banks, and where the concept of failure of not performing companies allowed the correct functioning of the market; the problem of the increase of the systematic risk remains. It has to be taken in consideration in fact, that the maintenance in the markets of firms that are not able to be competitive and survey in the markets generate what we can call as “zombie firms”[46]. This led to the question, how to manage the possible increase in the systematic risk and contagious effect of the harmonisation of capital markets?
Another important aspect to take in consideration, in the evaluation of the Capital Markets Union, is the importance of diversity. Each Member States have different characteristics, different internal capital markets, regulations, and cultures. Diversity can be seen not as a source of conflicts in terms of investments, but a source of richness, able to improve the status quo.

[43] Bhatia, M.A.V., Mitra, M.S., Weber, A., Aiyar, M.S., de Almeida, L.A., Cuervo, C., Santos, M.A.O. and Gudmundsson, T., 2019. A Capital Markets Union for Europe. International Monetary Fund.
[44] Bhatia, M.A.V., Mitra, M.S., Weber, A., Aiyar, M.S., de Almeida, L.A., Cuervo, C., Santos, M.A.O. and Gudmundsson, T., 2019. A Capital Markets Union for Europe. International Monetary Fund.
[45] Espinosa-Méndez, C., Gorigoitía, J. and Vieito, J., 2019. Stock exchange mergers: a dynamic correlation analysis on Euronext. Portuguese Economic Journal, pp.1-18.
[46] Andrews, D., M. Adalet McGowan and V. Millot, 2017. Confronting the zombies: Policies for productivity revival. OECD Economic Policy Papers, No. 21, OECD Publishing, Paris

Diversity across EU States allow them to learn looking at the others, and improve themselves using a different timeline, proper for the culture and situation of each country. This includes not only diversity in technologies and developments of the markets, but also on the regulatory prospective.

An example of this can be seen in the introduction of the "Code Napoleon[47]" enacted in 1804. The code was the first example of civil code in Europe at that time and derived from the historical moment of the French revolution. After the publication, many States, according to their own times, internal problems, and culture, create a national civil code. Will improvement happened if the French did not experience the French Revolution and Napoleon wrote the code? Maybe not, but still an example is needed in order to change the present situations.

Another example can be the diversity in the regulatory system of civil low and common law in the different Member States.

These differences represent a cultural diversity and are grounded in the different populations.

The unification of regulations and technologies at the same time for all European States in the field of Capital Markets and its regulation can lead to the loss of that diversity that characterize the Nations, and that can represent those sparks at the base of a further development.

Differences across Member States are particular evident in the field of company law, insolvency law and control systems.

Competition is a fundamental aspect in the integration of the different capital markets.

The sudden integration of all EU capital markets can generate a disadvantage for all those countries that today are in a less-development state of the markets. This can create opportunities for some evolved market "players" that can in some way perturb the internal mechanism of the National market. This can be the example of southern European Countries, whose source of financing is almost driven by a bank-base system and are characterized by a law development of capital markets. These elements could be an advantage for more developed Counties and investors, as northern ones, that can have an immediate advantage in entering suddenly in the other capital markets.

A sound trade-off faced by all regulators, and all Nations; is the one between liberalization and introduction of regulations in the markets. Capital markets are a fundamental element for States, especially in the trading of their public debt, and the complete liberalisation of capital markets, without any rule, as a neoclassical approach can suggest can generate an uncontrolled environment.

On the other side the introduction of too many rules and regulations on capital markets can generate the increase of investments and transactions in the over-the-counter market.

The dealing also of politics into the markets can be a problem in the creation of the Capital Markets Union. Politization of markets, especially if executed at European level will lead to reforms and introduction of regulation to acquire a consensus along some States or citizens, and so not acting in the interest of the Market itself[48].

[47] Britannica encyclopaedia. Napoleonic Code. https://www.britannica.com/topic/Napoleonic-Code.

[48] Wright, W., November 2014. Capital Markets Union: be careful what you wish for…New Financial Journal, Rethinking capital markets.

The European Union reform and legislation system moreover is characterized by the long time needed in the process of change. In the economy and in the markets, even more now with the use of high frequency trading, the prompt and fust respond is fundamental, and there can be doubt about the ability of the European Union to meet these characteristics.

The structure and functioning of the Capital Markets Union remain still a big question mark. The proposal of the European Commission in the creation of the CMU has to be intended as the creation of a federalisation of capital markets, as the "S" can suggest, or the creation of a unique, single and common capital market for all Europe?

The integration of capital markets across Europe will be at any level of markets, and both for primary and secondary market?

Is the Capital Markets Union an affordable project? We have to remember the big role played by States and their potential will to maintain their sovereignty on this subject. Integration of capital markets can be deviated and stopped by Member states that for historical, cultural and many different reasons.

Is a structural reform of Europe needed for the creation of the Capital Markets Union?

Many questions and doubts were presented, and still have to be solved in order to understand the possible effects that the creation of the CMU will have in the future of the European economy and on capital markets.

1.3 The present financing sources in Europe and the market integration

The banking system and its related lending activity represent in Europe the main source of funding for private citizens and companies. Despite the grate effort carried out by the EU in the creation of alternative sources of funding, the banking system and debt market are still top choices for European firms.

Another factor at the centre of the EU and Capital Markets Union's goals is the degree of integration of markets. Results start to be seen in the last years in the field of market harmonisation, helped by a further integration of Member States in other field of the economy and regulations.

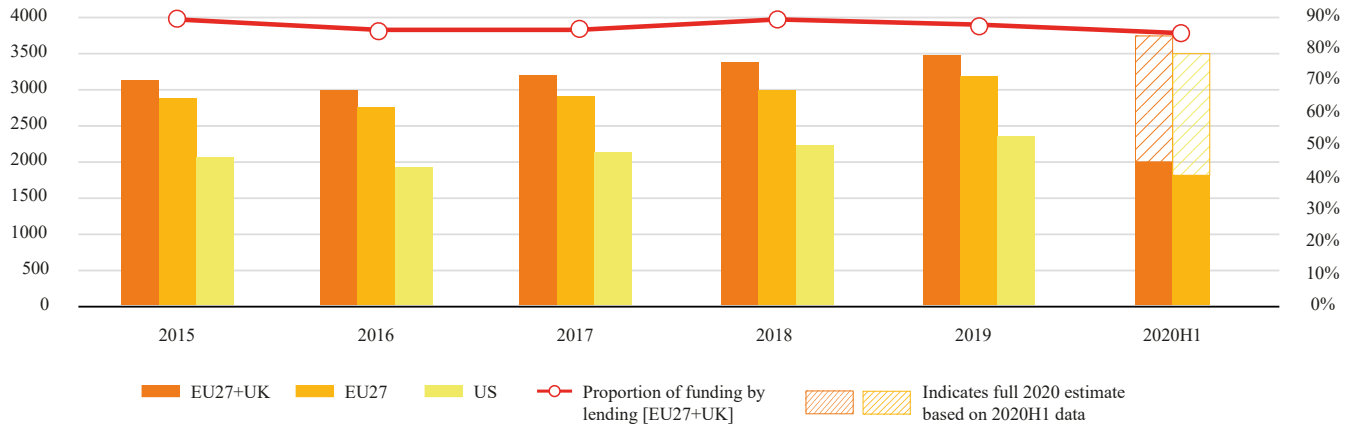
Nevertheless, the optimistic perspective of a further harmonisation is not supported by data in equity markets, that reveal to be highly fragmentated, and dealing with a scarcity of new listing companies, in contrast with the increasing number of delisting.

1.3.1 An overlook of the bank-lending market

The European financial market is mostly based on an eradicate bank-based source of funding. The bank lending system operates as the main source of financing for the majority of companies in the old country, increasing its lending by 13% from 2015 to 2019.[49] A comparison with the US market presented in Figure 5, provided by the Association for Financial Markets in Europe (AFME), allows to deeply understand the importance of the banking sector in Europe as main financial driver of companies' funding.

In 2019 the banking sector was counting almost EURO 2.3tn euro in US and almost EURO 3.5tn in Europe, with a total difference of EURO 1.2tn. Interesting is, in addition, to underline that the reliance of firms on the banking lending system is not decreasing in time, but on the contrary, although the great effort of the EU, is possible to notice and increasing path.

Figure 5: Evolution in the EU and US bank lending activity, described in billions of Euros.

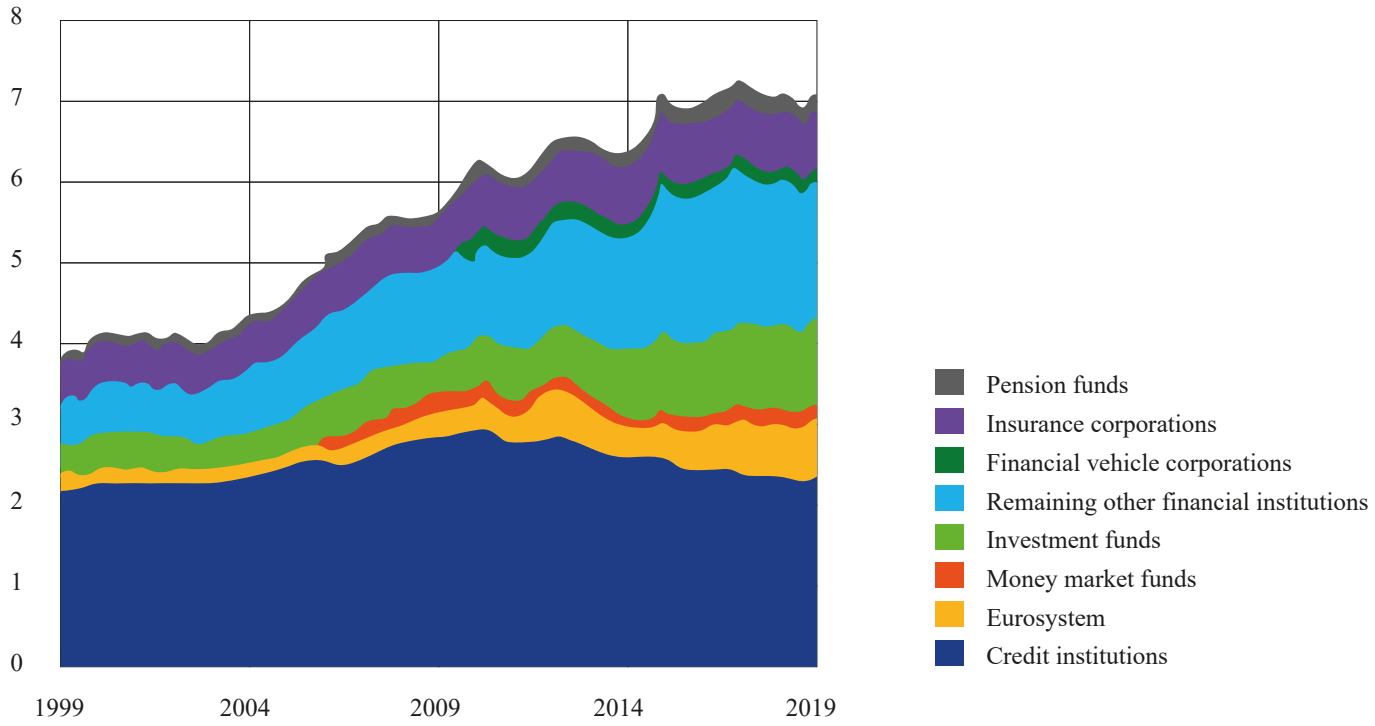


Source 5: Association for Financial Markets in Europe (AFME), October 2020. Capital Markets Union: key performance indicators, third edition, challenges, and progress in 2020. p.19.

[49] Association for Financial Markets in Europe (AFME), July 2020.Understanding the Liquidity landscape in European Equity markets. p. 9

Bank lending remain a particularly important, and the main source of financing especially for small and medium enterprises (SEMs)[50]. Looking closely at the Euro Area is possible to notice how this resulted to be dominated by non-marketable financing instruments, especially loans and unlisted shares[51]. Figure 6, provided by the European Central Bank, shows the importance of financial intermediaries in the Euro area in terms of total assets in the Euro financial sector. Banks, credit institutions, account for the higher share as provider of financial services. Nevertheless, in June 2019, almost 60% of total financial assets are in the hand of non-banking financial intermediaries[52]. This in some way could represents a source of mitigation of risk driven by the new regulations put in place after the financial crises, that shifted partially the burden for the provision of financial services to non-financial institutions as insurance, investment funds and pension funds, that experienced an fust growth and development.

Figure 6: Total assets of the euro financial sector by intermediaries. On the left scale ratio of assets to nominal GDP. Time frame: March 1999-June 2019**.**



Source 6: European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area. p.6

1.3.2 An overlook of the debt market

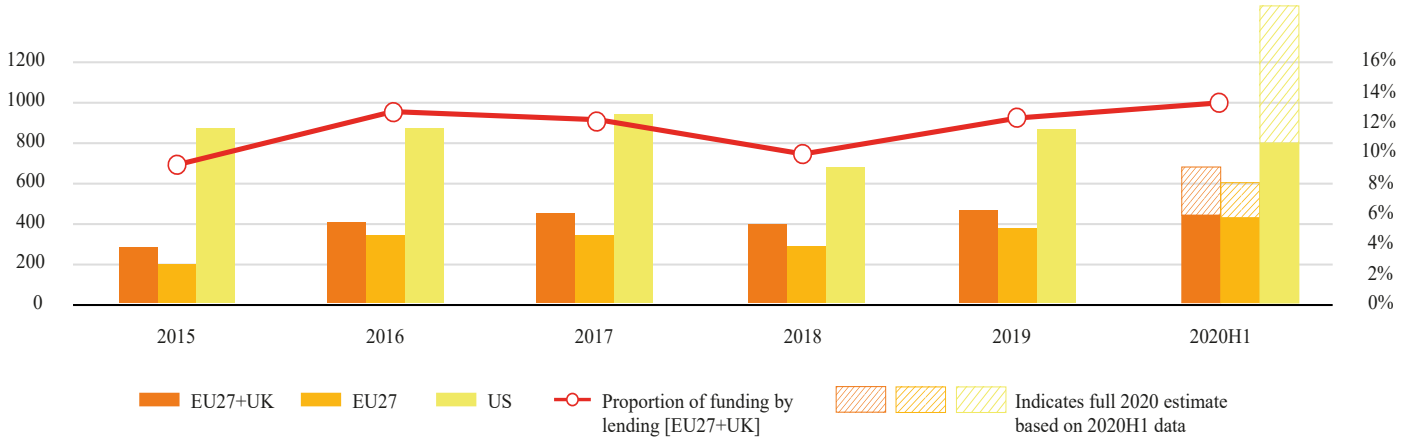
Despite the grate effort in the creation of highly developed capital markets both in the debt sector and equity markets, the financing of the Euro area remains in the hands of a debt-base system[53] after the main source of financing (bank-lending). The largest issuers of debt securities in the Euro landscape are the national governments, that are almost covering half of debt instruments[54] present in the market.

[50] Association for Financial Markets in Europe (AFME), July 2020.Understanding the Liquidity landscape in European Equity markets. p. 9
[51] European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area.
[52] European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area. p. 6.
[53] European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area. p. 25.
[54] European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area. p. 25.

Very important is moreover to take in consideration the present state of fact of the interest rates, that in Europe appears to be negative. This characteristic influences as consequence the retailers 'market that is not incentivized by the negative rates.

In comparison with another important markets as the US debt market, as shown in Figure 7, the EU level of bonds issuance in the market remains below the international levels. Nevertheless, an increase in the issuance of bound is present, even if it could be explained by many different factors as the need of States of issue public debt.

Figure 7: Evolution of European and US bond issuance, described in billions of Euros.



Source 7: Association for Financial Markets in Europe (AFME), October 2020. Capital Markets Union: key performance indicators, third edition, challenges, and progress in 2020. p.19.

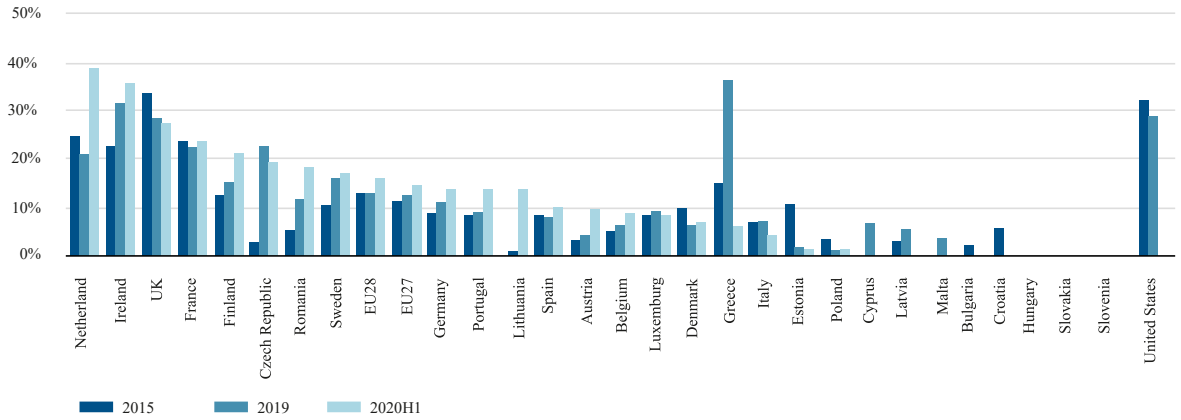
An interesting economic indicator to take in consideration in the evaluation of the sources of financing for Europeans companies is the equity-debt non-financing corporation indicator (debt- equity NFC), that describes the type of financing source used by companies that do not operate in the financial sector. This indicator, delivered by AFME[55], is presented as total percentage of the total NFC annual financing, so in percentage of the total financing that the different companies use in one year. This type of index gives an insight about the ability of companies to access to the public market to raise financing, both in form of bonds and equity. Looking at the first half of 2020, only 16.1% of the total financing of companies derived by the use of debt or equity instrument., and the remaining 83.9% derived from a bank-lending source of family-friend source[56]. Confronting the numbers with the US market, is possible underline the high difference in companies 'behaviours, that in the first half of 2020 in US relies on 30% of debt-equity instrument for financing their activities, indicating a higher equilibrium between capital markets and the banking system as source of financing for companies[57]. Nevertheless, must be pointed out that an increase in debt-equity NFC as percentage of total annual NFC from 2016 to 2019 is present in the European scenario, even if it is mostly driven by the issuance of national debt. Government expenditures in most of countries in fact relay on the issuance of debt

[55] Association for Financial Markets in Europe
[56] Association for Financial Markets in Europe (AFME), October 2020. Capital Markets Union: key performance indicators, third edition, challenges, and progress in 2020. p.17
[57] Association for Financial Markets in Europe (AFME), October 2020. Capital Markets Union: key performance indicators, third edition, challenges, and progress in 2020. p.17

as first source of financing and development.

An important distinction needs to be made in the evaluation of the single country position in the firm's ability to interact and access to the public market. Netherlands, Ireland, and France can be considered as highly developed European countries from a public market point of view, and as shown in Figure 8, characterized among the EU countries as the ones with the higher debt-equity NCF as percentage of total annual NCF. On the contrary Italy, Estonia and Poland can be considered as bank-based countries. In these last countries, as consequence, the difficulties in accessing the public market (debt and equity) for firms are so high that the main financing source is represented still by the banking sector.

Figure 8: First half of 2020 comparison with 2019 and 2015 market financial indicator by country. Market indicator: bond-equity NCF financing issuance as percentage of total annual NFC financing.



Source 8: Association for Financial Markets in Europe (AFME), October 2020. Capital Markets Union: key performance indicators, third edition, challenges, and progress in 2020. p. 21

1.3.3 An overlook of the equity market

The equity market in Europe can be considered not highly developed, resulting in an opportunity loss for EU citizens and businesses, that do not have the possibility to benefit from an efficient, competitive, and deep source of financing.

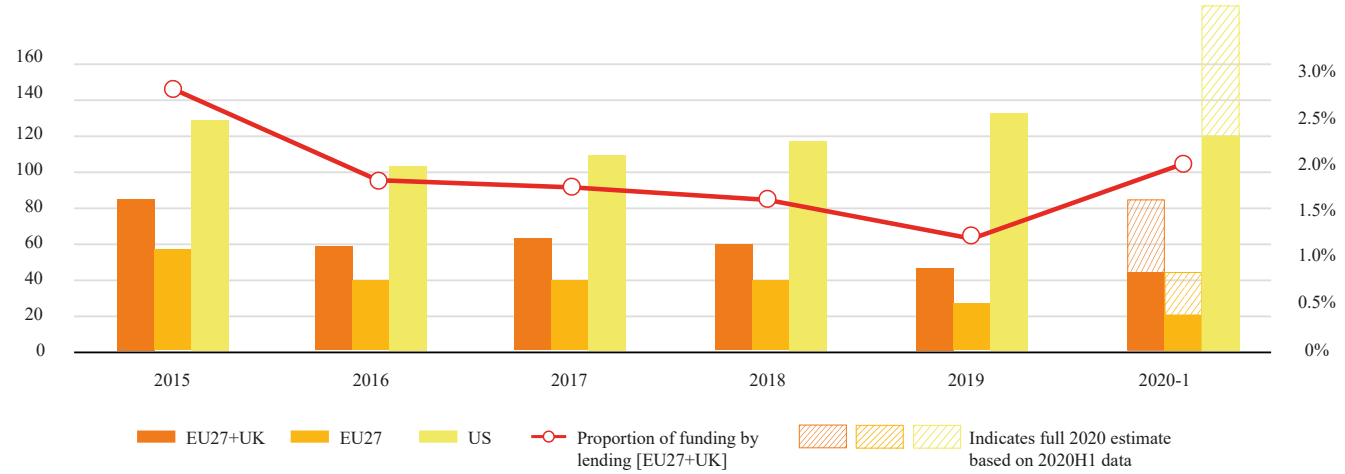
Listing attitudes in EU start their decline from 1999 with the creation of the European Monetary Union, that unexpectedly brought companies to relay even less to equity as form of financing.

Figure 9 shows a certain stabilization in the number of marketable instruments in the recent years, even if with a certain degree of not-homogeneity across countries[58].

A comparison between the European Union and US in terms of equity markets reveals the importance of the development of this market in Europe. This further development can lead to an increase of competition with the US market, and so to an increase in the market richness of the EU, enlarging its ability to attract new investors.

[58] European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area. p. 25

Figure 9: Evolution of EY and US equity funding, described in billions of Euros.



Source 9: Association for Financial Markets in Europe (AFME), October 2020. Capital Markets Union: key performance indicators, third edition, challenges, and progress in 2020. p.18.

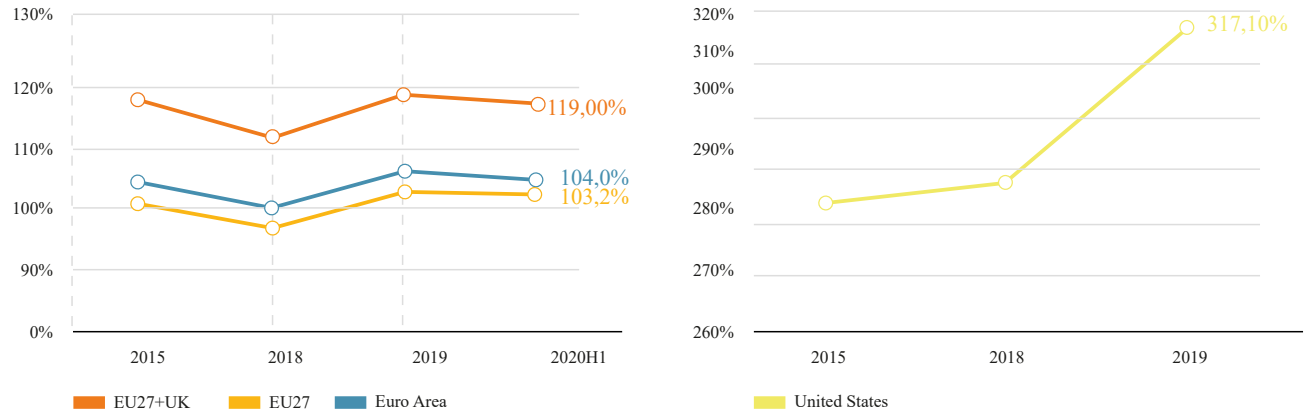
Interesting is the analysis of the types of transactions present in the equity market. As reported in the ESMA annual statistical report of 2020, the 26% of total equity trades in the EEA take place over the counter (OTC), so between the private parts and not in the public market[59]. As reported by ESMA, in 2019, 18774 equity securities were exchanged over the counter, for a total of 67mn transaction, and a value of EUR 6.9tn in terms of trading volumes. These data revel the high importance of this type of "market", that involve a less transparent exchange of securities. Alarming is the fact that at the increment of market regulations the number of OTC transaction increase. The reduction of OTC transaction must be considered as future goal in the development of the equity market in Europe.

An analysis of the present equity market cannot exclude the evaluation of the type of investments taken by households. Looking at the household market indicator[60] proposed by AFME in Figure 10, is possible to observe the households' financial assets (excluding cash, deposits, and unlisted companies), as percentage of GDP. This index can be taken as proxy of the households' appetite for investments. As shown in the figure, the EU is characterized by a big lack of participation of households in the equity market, especially as regard the investment of their savings. This indicator can give an added insight bout the importance of the banking sector in Europe as compared to the US, where the household market indicator in 2019 count for the 317.1% of the national GDP, indicating an intense participation of citizens in the capital market.

[59] European Securities and Market Authority (ESMA), 18 November 2020. EU securities markets: ESMA Annual Statistical Report. p. 20.

[60] (listed equity shares + investment fund shares + bonds + life insurance and pension funds)/GDP

Figure 10: Household Market Investment indicator: Household market financial assets (excluding cash, deposits and unlisted equity) as percentage of GDP.

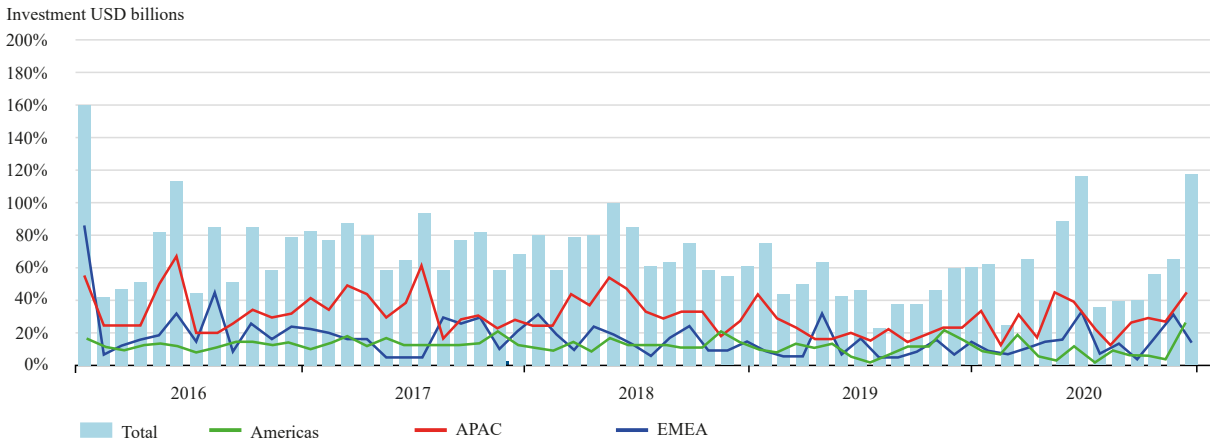


Source 10: Association for Financial Markets in Europe (AFME), October 2020. Capital Markets Union: key performance indicators, third edition, challenges, and progress in 2020. p. 24.

1.3.3 IPO in Europe

The present scenario of the initial public offering (IPO) in Europe cannot be considered favourable. This scenario nevertheless is quite common in the recent years across all the world. New listing IPO decreased in the first half of 2020 by 29.5% in EMEA (European-Middle East-Africa) in respect to the prior year and the investment flow through IPO decreased by 77.1%[61] following the World Federation of Exchanges data, illustrated in Figure 11.

Figure 11: IPO evolution across the world.



Source 11: World Federation of Exchanges (WFE), August 2020. First-Half Market Highlights. p.5.

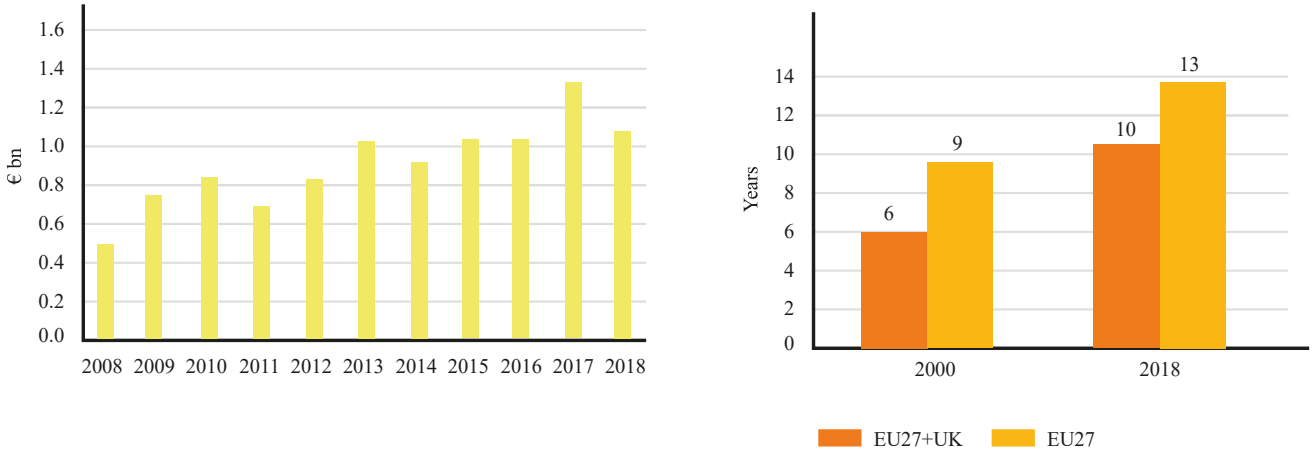
Looking closely to data relative at the last years in Europe is possible to notice that: not only the number of IPO is declining, but also the composition of the listed market companies is changing.

Companies tend to access the procedures for the initial public offering at a later stage of their development, and they also tend to have higher size in respect to the previous years[62]. Figure 12 shows the analysis published by Oxera on the primary and secondary market in EU. In particular, it is possible to underline how the average size passed from Euro 0.5bn to 1.1bn from 2008 to 2018 (Panel A) and the IPO median age passed from 9 years in Europe in 2000 to 13 years in 2018 (Panel B).

[61] World Federation of Exchanges (WFE), August 2020. First-Half Market Highlights.
[62] Oxera, November 2020. Primary and secondary equity markets in the EU. Final report.

This is particularly relevant if we consider the situation of SMEs, especially family-managed firms, that have difficulties to access the market due to the increase of the listing costs, agency costs and regulatory requirements[63].

Figure 12: Panel A: average size of listed companies, 2008-2018. Panel B: median age at IPO, 200- 2018.



Source 12: Source: Oxera, November 2020. Primary and secondary equity markets in the EU. Final report. pp. 32-33

The initial public offering process can represent many benefits for companies, as the provision of new additional funding, a facilitation of some acquisition strategies, an increase in visibility, and even more important, the reduction in the cost of capital for the company.

Nevertheless, this process brough different and not neglectable costs: initial direct costs, as initial fees; initial indirect costs, as prospectus issuance costs; ongoing direct as exchange fees; and indirect costs as loos of control and disclosure burden[64]. A trade-off has to be faced by companies that decide to undertake an IPO.

This kind of costs can be particularly heavy and can represent insurmountable barriers for SMEs.

Downside aspects of IPO procedure do not include only the presence of costs, but also aspects that cannot be immediate detected by a simple direct profit analysis.

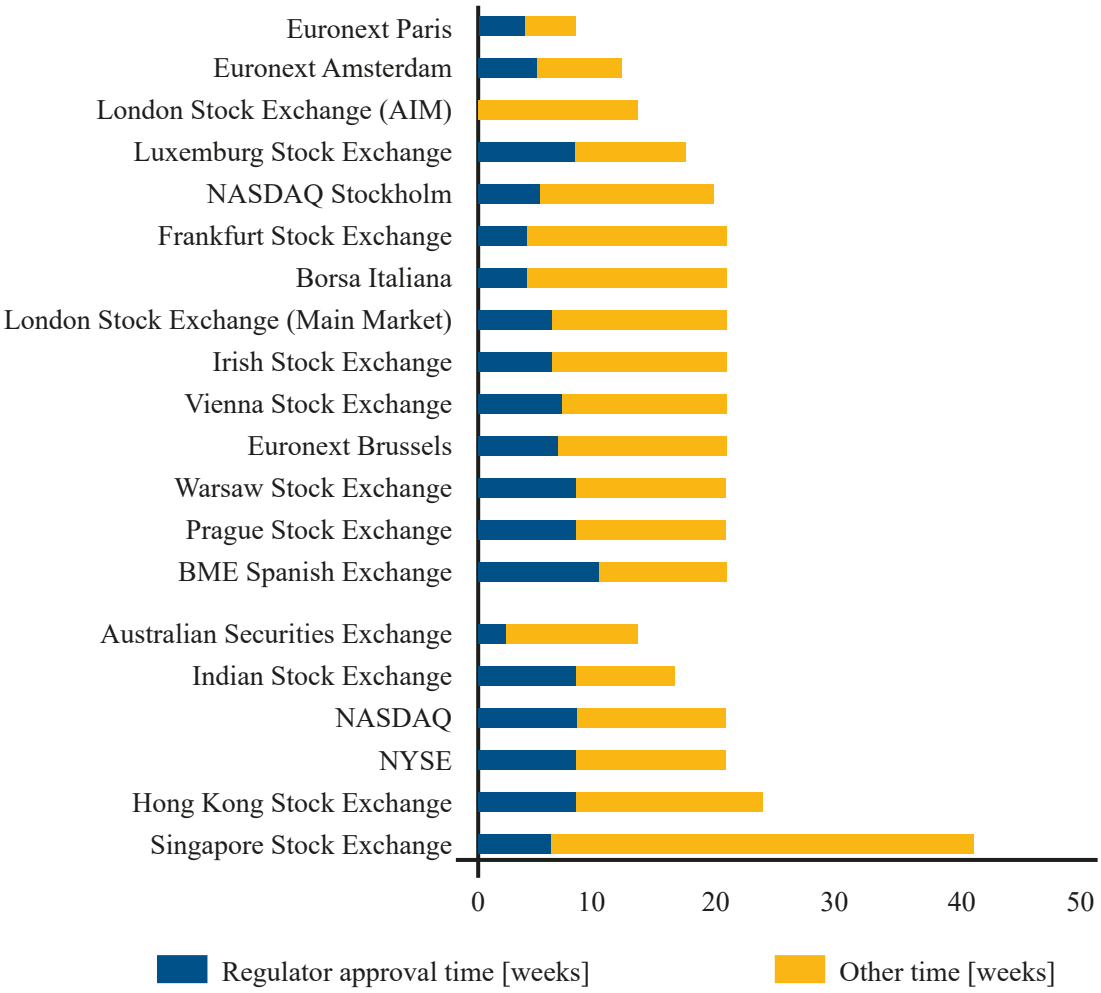
An IPO implicitly deal with the living of one part of the control of the companies to third parties.

Moreover, usually investors have a more short-term vision of the investment they perform in the company, and higher standards of information disclosure are required to firms. Sometimes, according to the different approach in each country, companies have in addition to deal with not favourable environment as regard taxation.

Another important aspect to take in consideration is the bureaucratic time that is needed for a company to perform a listing procedure. As shown in Figure 13 in most of exchanges the process took at least ten weeks.

[63] Oxera, November 2020. Primary and secondary equity markets in the EU. Final report.
[64] Oxera, November 2020. Primary and secondary equity markets in the EU. Final report.

Figure 13: Typical listing approval times by stock exchanges of an IPO



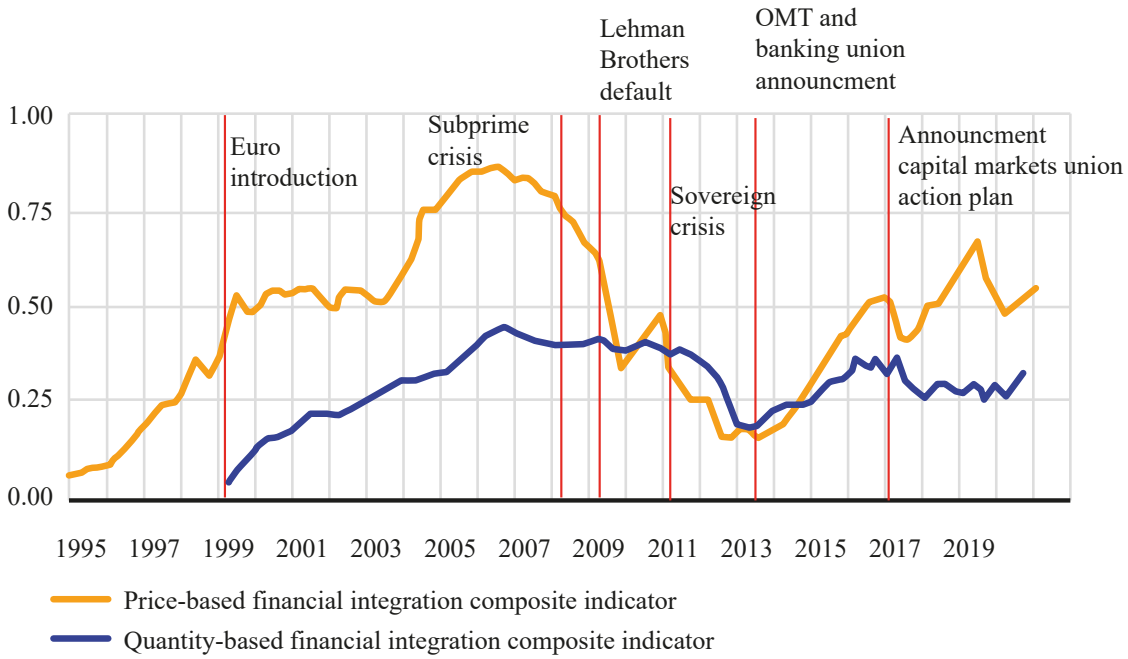
Source 13: Oxera, November 2020. Primary and secondary equity markets in the EU. Final report. p. 134

1.3.4 Market integration in Europe

Every year the European Central Bank (ECB) publishes an interesting sum up of the financial integration in the Euro Area. In particular, the ECB provides an internal indicator for the detection of the integration across euro countries. Figure 14 shows the 2020 results[65]. The provided index of the ECB is both price-based and quantity-based.

[65] European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area.

Figure 14: Price-based and quantity-based composite indicators of financial integration. Quarterly data, price base indicator: Q1 1995 - Q3 2019; quantity-based indicator: Q1 1999 - Q2 2019. The price-based composite indicator aggregates ten indicators for money, bond, equity and retail banking markets, while the quantity-based composite indicator aggregates five indicators for the same market segments except retail banking. The indicators are bounded between zero (full fragmentation) and one (full integration). Increases in the indicators signal greater financial integration. From January 2018 onwards the behaviour of the price-based indicator may have changed due to the transition from EONIA to €STR interest rates in the money market component. OMT stands for Outright Monetary Transactions. Source: European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area. P.12.



Source 14: European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area. P.12.

Following the ECB realises seems that in recent time the Euro area experienced a higher integration of financial markets, especially the one related to repos-markets, even if this is not the case of equity markets[66]. European equity market remains still highly fragmentated and different, both is size and development, across the Euro area. Moreover, a high degree of volatility in integration characterizes the Euro system.

Looking at the historical path of the index is possible to underline how the integration process between EU markets experienced an exponential growth at the creation of the EU, followed by a decline in the harmonisation of markets brought by the financial crises of 2008 and the sovereign debt crises of 2010.

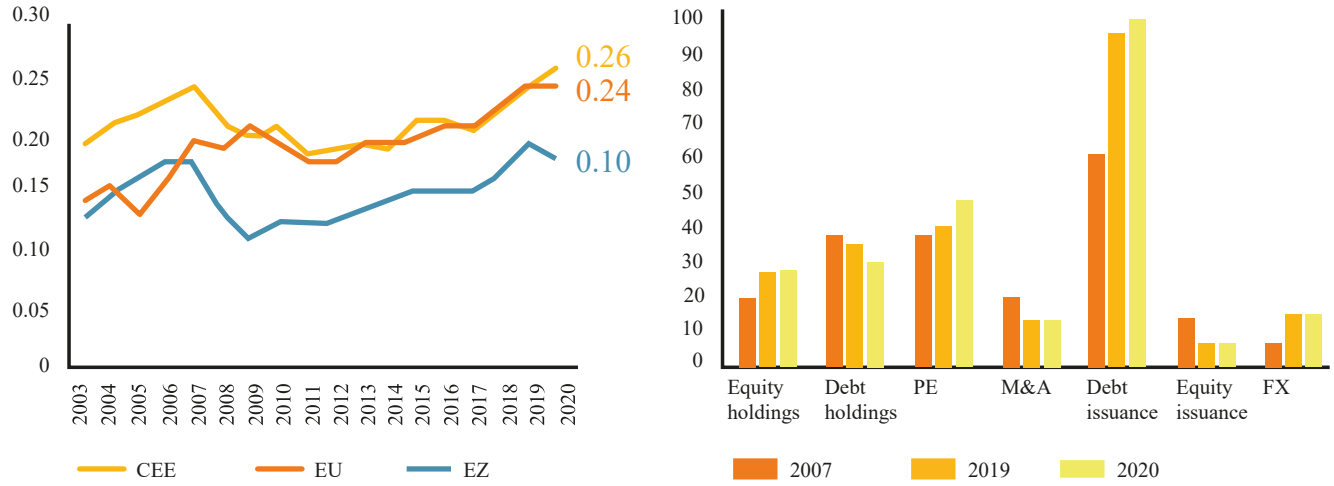
What will be the impact of Covid-19 on the market integration of the European Union?

Another index of European integration is the one delivered by the Association for Financial Markets in Europe (AFME). Looking at the capital market integration index, taking value between zero (no integration) and one (full integration), is possible to see a comprehensive, but relatively slow increase of financial integration across Europe. The proposed AFME indicator is based on cross-border M&A, bond, and equity issuance.

The results show an integration level in 2015 of 0.21 and of 0.24 in 2019, as shown in Figure 15 Panel A. Integration as shown in panel B of Figure 15 is prevalent in the debt market.

[66] European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area.

Figure 15: Panel A: Intra-European integration index. Panel B: Intra-European integration index by components and evolution.

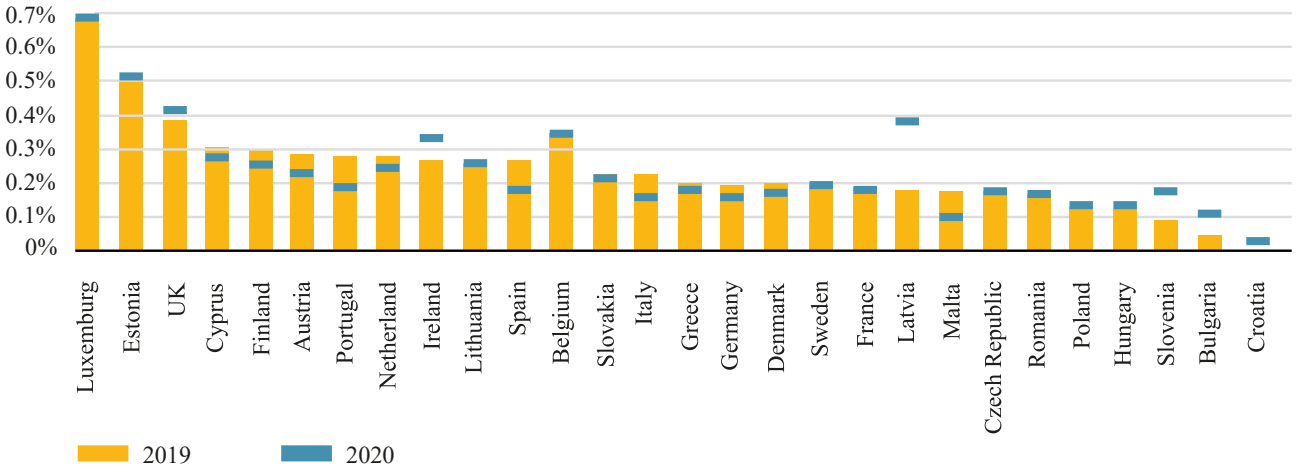


Source 15: Association for Financial Markets in Europe (AFME), October 2020. Capital Markets Union: key performance indicators, third edition, challenges, and progress in 2020. p. 55

Dividing the EU countries is possible to understand the integration scenario of 2020.

Although the presence of the COVID-19 pandemic, Luxemburg, UK, and Estonia kept their positions as most interconnected capital markets in Europe as shown in Figure 16.

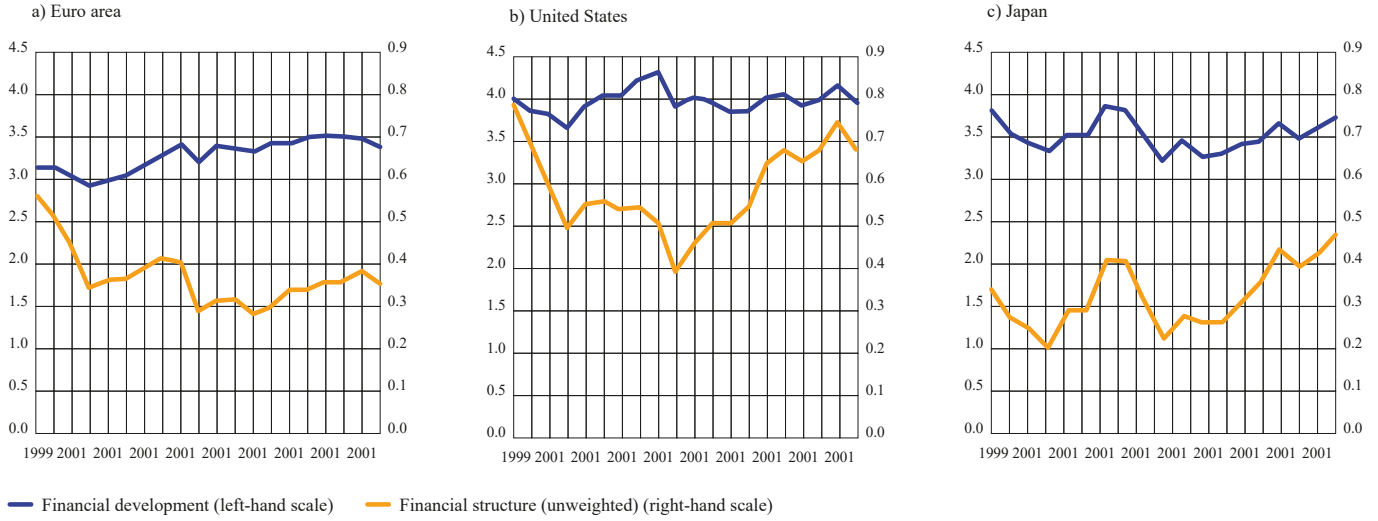
Figure 16: Intra-European capital markets integration by countries index, 2019 and 2020.



Source 16: Association for Financial Markets in Europe (AFME), October 2020. Capital Markets Union: key performance indicators, third edition, challenges, and progress in 2020. p. 56.

An important aspect to take in consideration speaking about the integration of capital markets is the level of internal development of the market itself, in comparison with other important markets across the world. Figure 17 supplies information about the Euro financial development, and especially the development of the financial structure.

Figure 17: Financial development and financial structure in the Euro area, US, and Japan. The chart plots for economic agents, resident in the Euro area, US and Japan the sum of credit to private sector through loans and debt securities as well as listed shares (i.e., the stock market capitalization), divided by GDP ("financial development"), and the ratio of the euro area stock market capitalization to credit to the private sector through loans and debt securities ("financial structure"). Loans exclude inter-company loans.



Source 17: Association for Financial Markets in Europe (AFME), October 2020. Capital Markets Union: key performance indicators, third edition, challenges, and progress in 2020. p. 44.

In comparison with other big economies, the Euro development in the field of financial infrastructure is at an extremely low levels, showing the need of a proper restructure of the status quo.

The development of the equity market cannot be spontaneous and require the direct action of governments and the European Union, to booster higher development not only in the single national markets but also in the interaction between them at European level.

Chapter 2

The evolution of stock exchanges and their role in the economic environment

A basic element of capital market's structure and functioning is represented by exchanges. In this section, an analysis of the evolution of exchanges is delivered, focusing the attention on stock exchanges.

Is possible to define an exchange following 3 types of definitions, related to a different view of the related business.

An exchange can be seen as:

- A market: "An exchange is a trading system that must provide trade execution facilities; provide price information in the form of buy and sell quotations on a regular or continuous base, engage in price discovery through its trading procedures, rules or mechanism; have either a formal market-maker structure or a consolidated limited order book; or be a single price auction; centralise trading for the purpose of trade execution; have members; exhibit the likelihood, through system, rules and/or design, of creating liquidity in the sense that there be entry of buy and sell quotations on a regular basis, such that both buyers and sellers have a reasonable expectation that they can regularly execute their orders at those quotes[67]".
- A firm: "An exchange is a firm that creates a market in financial instruments and have the ownership on the delivered price information[68]. In addition, an exchange can be seen as a producer of a composite good, the exchange of the securities, formed by counterparty research, price formation, insurance for a good clearing and standardization of the good exchanged[69]".
- A broker-dealer: "An exchange can be considered as an intermediary between intermediaries, gathering trading orders and suppliers the way to executing them[70]"

An exchange can be moreover differentiated for the type of traded instruments, geography importance (national or regional exchanges) and conformation.

The functions of an exchange can be generally divided in three main area: trading system provider function, other operational function, and regulatory function.

The main characteristic of an exchange is the creation and maintenance of a trading system, where the process of exchange of securities take place. The trading system can be floor-based, requiring a physical presence, or electronic.

Today the common exchange trading system is characterized by the use of an electronic trading system, that do not require a physical presence in the main square, but only an electronic access to the trading platform.

---

[67] Domowitz, I., 1996. An exchange is a many-splendored thing: The classification and regulation of automated trading systems. In The industrial organization and regulation of the securities industry, pp. 93-124. University of Chicago Press.

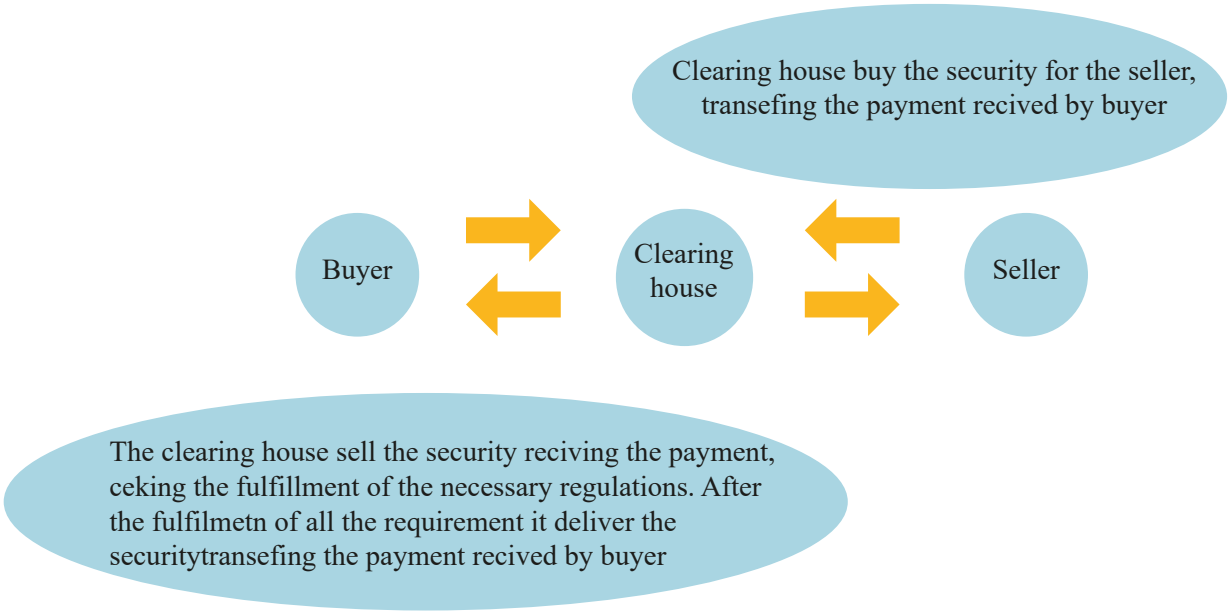
[68] Mulherin, J.H., Netter, J.M. and Overdahl, J.A., 1991. Prices are property: the organization of financial exchanges from a transaction cost perspective. The Journal of Law and Economics, 34(2, Part 2), pp. 591-644.

[69] Di Noia, C., 2001. Competition and integration among stock exchanges in Europe: Network effects, implicit mergers and remote access. European Financial Management, 7(1), pp. 39-72.

[70] Di Noia, C., 2001. Competition and integration among stock exchanges in Europe: Network effects, implicit mergers and remote access. European Financial Management, 7(1), pp. 39-72.

The old film scenes in which people shout in the main trading floor buying and selling stocks, bonds and commodity today are replaced by the click on the computer mouse of investors in their silent rooms.
Exchanges can moreover differentiate based on their trading systems, rules and technologies adopted.
They further distinguish in the linking method between buyers and sellers, what we usually call "Clearing Houses" system, ensuring the presence of all the necessary requirements for the correct ending of the financial relationship.
This kind of agent is essential for the managing of the insolvency risk for seller; Clearing Houses can be seen as the buyer for every seller and the seller for every buyer. Figure 18 illustrates the mechanism of connection performed by the clearing houses in an exchange.

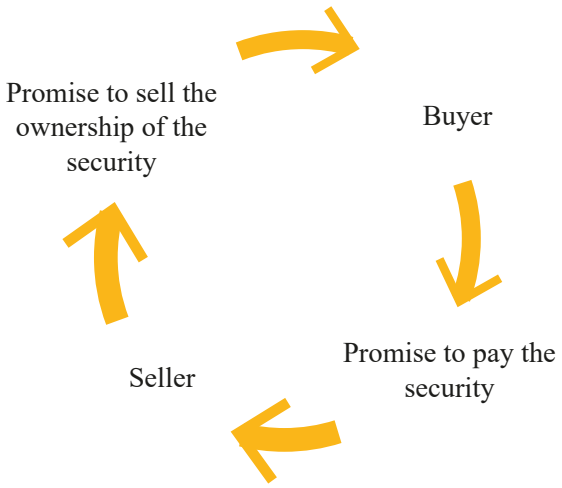
Figure 18: Clearing House System, the connection between seller and buyer in exchanges.



The exchanges of course perform also other important operational functions as provider of market data, production of indexes, and in some cases, they offer investment products based on the provided indexes. A remarkably interesting activity for exchanges is the provision of market data, that not only represents one of the main sources of profit for exchanges but is also an important topic in the today's analysis of the future of exchanges.
In the next sessions, an overlook of the importance of market data revenues in the analysis of exchanges' revenues, and how this kind of data can be considered the main drivers of the future role of exchanges, is delivered.
The regulatory function of an exchange deals with the commonly known concept of "credit-ring[71]". The transfer of the security and the related payment is based on the reciprocal trust of the parts that promise to exchange the ownership of the security and the payment. A visual description of this process is presented in Figure 19.

[71] Elliot, J., July 2002. Demutualization of securities exchanges: A regulatory prospective. International Monetary Fund (IMF) working paper.

Figure 19: The Credit-Ring



With the increase in the dimension and participants to the exchanges and the presence of a distant relationship between the playing agents. This trust base requirement needs some additional measures to be present. The development of standards, credit control, requirements, as well as transparency measures was a fundamental way for the maintenance of the functioning of the exchange. These functions are managed and settled not only by national or multinational organisation, as in EU, but also by the exchanges themselves.

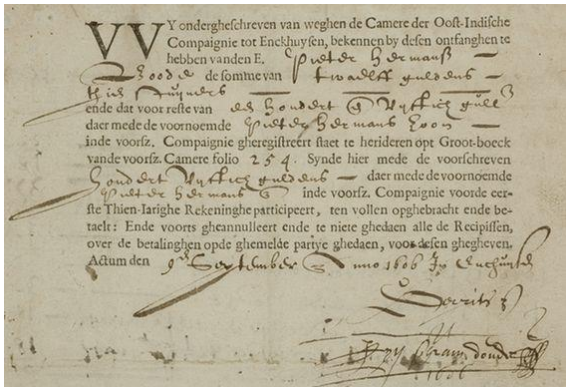
2.1 Historical review

The first attempt in the creation of an exchange in the human history is difficult to detect.

Under certain theories and studies, a form of rudimental exchange system was also present in the Hammurabi code and in the ancient Rome. Nevertheless, usually a today's similar set up of exchange is dated back to the early 17th century, in the Dutch Nation.

The official first stock exchange was created in 1602 in Amsterdam. This structure was initially focused of the trading of the Dutch East India Company's securities; that was issuing for the first time in human history corporate bonds and stocks. Figure 20 shows the first bond, dated 7 November 1602, issued by the Dutch East Indian Company (VOC).

Figure 20: A Bond issued by the Dutch East India Company (VOC), 7th of November 1623.



The modern idea of stock market was created, but the systems and way to think and operate in them changed a lot form the 17th century.

Interesting is the history of the New York stock exchange, that represents an interesting example of the evolution of the stock exchange system. The initial exchange was founded around a buttonwood tree in 1792, on the now well-known Wall Street in New York[72]. The 24 founders and members of the exchanges, signing the Buttonwood Agreement give born to one of the most known exchanges in the world. A part of the agreement's text is reported: "We the Subscribers, Brokers for the Purchase and Sale of the Public Stock, do hereby solemnly promise and pledge ourselves to each other, that we will not buy or sell from this day for any person whatsoever, any kind of Public Stock, at a less rate than one quarter percent Commission on the Specie value and that we will give preference to each other in our Negotiations.[73]"

The NY stock exchange assumed the shape of a broker market, where members had the possibility to trade in the established exchange entity. This type of exchange can be considered as mutual exchange, where members own the exchange and operate on it. In the traditional set-up, revenues derive from membership fees, trading fees, listing activities and subsequently the sale of market data. This kind of mutual nature of exchanges was maintained for decades, maintaining a sell-in business activity. Exchanges were considered as provider of a service to the selling side of the security.

[72] New York Encyclopaedia. New York Stock Exchange. Website. https://www.newworldencyclopedia.org/entry/New_York_Stock_Exchange#History

[73] Buttonwood Agreement 1792.

In the 1980's new technologies and inventions revolutionises the financial worlds. The physical presence in the exchanges was replaced by one click of the computer keyboard and the speed of the information circulation increased at unimaginable levels.

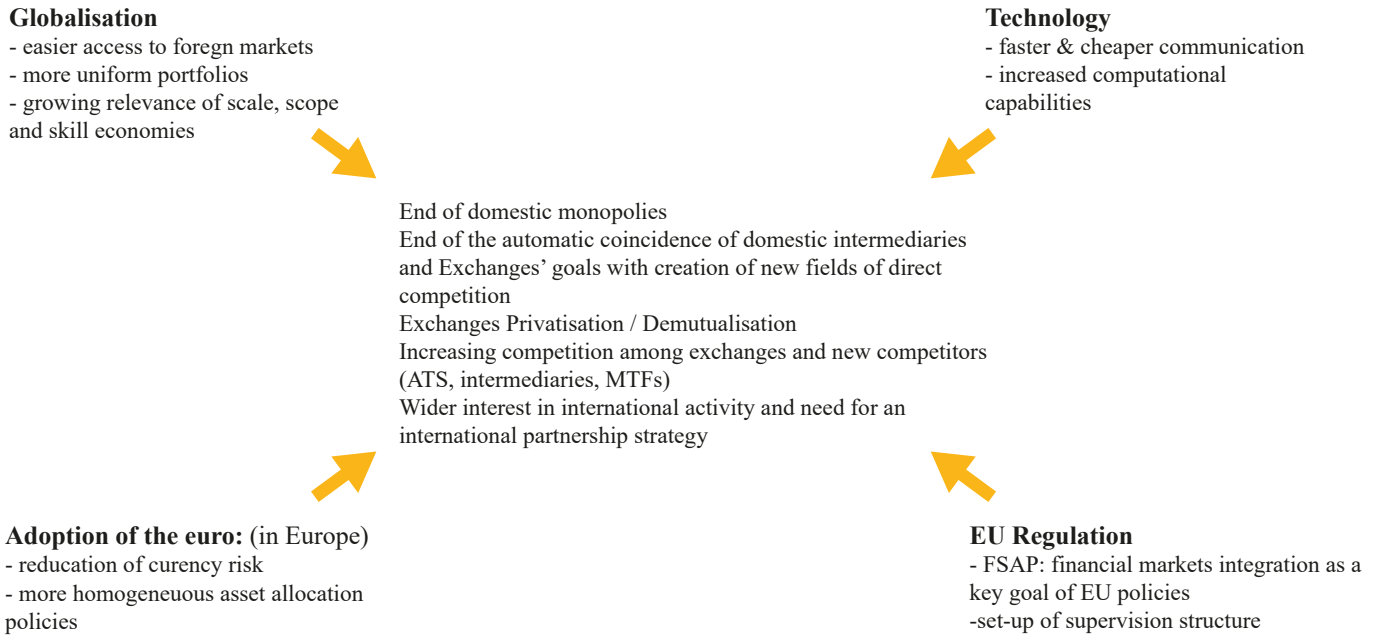
The globalisation, as the new technologies, delivered in an easier access to foreign markets, the creation of more uniform portfolios across world's investors and the increase of the financial possibilities under economy of scale and scope. Electronic trading, algorithm and high frequency trading started to be a base element of exchanges, reducing transaction costs, and increasing the liquidity of markets. These new technologies represent the real revolution of the new millennium. Nevertheless, this new modern environment created the necessity for an adequate regulation structure and supervision, allowing this system to not perturbate the stability of the markets.

In the European Union, this process of drastic innovation was also booster by the adoption of a common currency (the EURO), reducing currency risks and rising a more homogeneous asset allocation policy in all Member States. Common EU regulations, and the market integration across countries, fostered to the creation of a EU structure for the regulation and supervision of exchanges.

All these new characteristics brought to the relax of entry barriers in the exchange markets in EU, bringing the end of some domestic monopolies, the increase of competition across exchanges, and more attention to the international strategies and partnership. The new global enthusiasm and revolution of exchanges, and in general of financial markets, also allowed the creation of more complex and different financial products, that started to be integral part of investor's portfolio[74]. All these effects and their consequences are summarised in Figure 21.

[74] Di Noia, C. and Filippa, L., 2021. Looking for New Lenses: How Regulation Should Cope with the Financial Market Infrastructures Evolution.

Figure 21: Graphic representation of the effects of the globalisation, technologies, euro and EU regulations on the EU market



An interesting event affecting most of exchanges in Europe and in the world was the taken process of demutualisation. If at the beginning exchanges assumed the structure of a not-for-profit organisation, the new process of transformation of the new millennium, brought exchanges to think to different governance structures, different to mutual or cooperative classical models[75].

"Demutualisation" is usually presented as the process of transformation of an exchange from not-profit to for-profit organisation. The structures assumed by the different exchanges were numerous and includes in some cases their transformation into public companies listed in their own market. This is the case of the NY stock exchange, Nasdaq, London stock exchange group, that today are not only exchanges but also publicly traded companies.

If one hand the revolution of exchanges brought high increase in efficiency, opportunities, increasing network and size of exchanges on the other hand this also brought the creation of more homogeneous markets with lower entry barriers.

This last point allowed new competitors, not necessarily structured as regulated markets, to offer services similar to the one offered by exchanges.

2.1.1 Exchanges as companies: a controversial issue

A crucial element to emphasise in the present world of exchanges is the structure of exchanges as companies, that in most of the cases are traded in their own exchange.

How is possible for exchanges to keep a regulatory function if they are themselves listed companies?

Conflicts can arise from the regulatory-public interest function of an exchange, and their public company nature. Exchanges resulted to be owners-consumers of their own activity.

[75] International Organization of Securities Commissions (IOSCO), December 2000. Discussion paper on stock exchange demutualization.

In their classical form of business (mutual structure), revenues of an exchange were used to cover expenses and all cost related with the functioning of the exchange itself, without looking to an extra profit. This peculiar characteristic of the business raised extremely low level of conflicts between the commercial and public interests involved in the figure of this agent.

The changing of governance to a for-profit organisation led to a seeking for profit-maximization behaviour of exchanges, and so the rise of potential conflicts of interest[76].

In order to be clear, is possible to take the example of trading halts, so temporary suspension of the trading of one or more securities for regulatory purpose or adjust market equilibria. This function can be in contrast with the search of profit for the exchanges that, reducing the volume of the traded security will also lower their own trading fees. Another example can be the conflict arising from the IPO of the exchange itself.

How can the exchange correctly and without influence respects its own regulations and screening for the IPO, if the screening is conducted by the exchange itself?

Not to ignore is also the application of transparency rules and regulations set up both by the exchange itself and by the regulatory authority on capital markets and exchanges. Both the exchanges and the competent regulatory authority strictly cooperate for the maintenance of the stability and functioning of capital markets. An exchange must ensure that in respect to its own prospective it remains credible and trustworthy[77].

As for applied in many other financial institutions and agent, the creation of separate entities for the analysis and screening of the exchange can represent a solution; a sort of Chinese-wall separating the business of the exchange and the regulatory body of it.

[76] Di Noia, C. and Filippa, L., 2021. Looking for New Lenses: How Regulation Should Cope with the Financial Market Infrastructures Evolution. Binder, Jens and Paolo Saguato (eds.), "Financial Market Infrastructure: Law and Regulation", Oxford University Press, 2021.

[77] Di Noia, C. and Filippa, L., 2021. Looking for New Lenses: How Regulation Should Cope with the Financial Market Infrastructures Evolution.

2.2 The status quo

The world of the exchanges today is very diversified and includes an extremely high number of different entities. As shown in Table 4, the most important exchanges ranked for market-capitalisation dimension, and a high degree of diversification is present both from a geographic point of view both as regard the governance structure.

Table 4: Rank of the biggest exchanges based on the market capitalisation at December 2019.

#	Exchange	Country/Countries	Domestic Listed Companies Dec 2019 - #	Market Capitalisation Dec 2019 - $ bn	Governance
1	NYSE	USA	2 872	24 480	Listed
2	Nasdaq-US	USA	2 684	13 002	Listed
3	Japan Exchange Group	Japan	3 704	6 191	Listed
4	Shanghai Stock Exchange	China	1 572	5 106	Mutual Non Profit
5	Hong Kong Exchanges and Clearing	China	2 272	4 899	Listed
6	Euronext	Fra-Bel-Ned-Por-Ire	1 067	4 702	Listed
7	LSE Group	UK-Italy	2 026	4 183	Listed
8	Shenzhen Stock Exchange	China	2 205	3 410	Mutual Non Profit
9	TMX Group	Canada	3 358	2 409	Listed
10	Saudi Stock Exchange (Tadawul)	Saud Arabia	204	2 407	Government
11	BSE India Limited	India	5 512	2 180	Private
12	National Stock Exchange of India	India	1 954	2 163	Private
13	Deutsche Boerse AG	Germany	470	2 098	Listed
14	SIX Swiss Exchange	Swiss	237	1 834	Mutual Non Profit
15	Nasdaq Nordic and Baltics	Swe-Den-Fin-Ice-Baltics	1 037	1 613	Listed
16	ASX Australian Securities Exchange	Australia	1 952	11 488	Listed
17	Korean Exchange	Korea	2 262	1 485	Private
18	Taiwan Stock Exchange	Taiwan	867	1 217	Private
19	B3 - Brasil Bolsa Balcao	Brasil	324	1 187	Listed
20	Johannesburg Stock Exchange	South Africa	274	1 056	Listed
21	BME Spanish Exchanges	Spain	2 870	797	Listed
22	Moscow Exchange	Russia	213	792	Listed
23	Singapore Exchange	Singapore	470	697	Listed
24	The Stock Exchange of Thailand	Thailand	725	569	Government Non Profit
25	Indonesia Stock Exchange	Indonesia	668	523	Mutual Non Profit
26	Bolsa Mexicana de Valores	Mexico	139	414	Listed
27	Bursa Malaysia	Malaysia	919	404	Listed
28	Tehran Stock Exchange	Iran	331	321	Private
29	Oslo Bors	Norway	191	296	Private (in 2020 bought by Euronext)
30	Philippine Stock Exchange	Philippine	265	275	Listed
31	Tel-Aviv Stock Exchange	Israel	414	237	Private
32	Bolsa de Comercio de Santiago	Chile	203	204	Private
33	Borsa Istanbul	Turkey	378	185	Private
34	Qatar Stock Exchange	Qatar	47	160	Private
35	Warsaw Stock Exchange	Poland	798	152	Listed
36	Abu Dhabi Securities Exchange	Abu Dhabi	67	145	Government
37	Hochiminh Stock Exchange	Vietnam	378	142	Private
38	Vienna Stock Exchange	Austria	71	133	Private
39	Bolsa de Valores de Colombia	Colombia	66	132	Listed
40	Boursa Kuwait	Kuwait	164	118	Private

Source Table 4: Noia, C. and Filippa, L., 2021. Looking for New Lenses: How Regulation Should Cope with the Financial Market Infrastructures Evolution. p.7. Binder, Jens and Paolo Saguato (eds.), "Financial Market Infrastructure: Law and Regulation", Oxford University Press, 2021.

The evolution of the equity markets across the world have moreover to be taken in consideration in the evaluation of the present degree of development of the exchanges. The establishment of exchanges started to be a widespread practice for in different nations, pushed by many governments, in order to create a functioning local financial market with the final goal of attracting new resources in the country. States as China, India,

South Korea that at the beginning of 1990 did not have an exchange and a functioning equity market on the territory, or have a very low market capitalization, today are on the contrary dominating the world scenario in terms of equity market capitalisation represent today one of the main trading markets in the world.

As shown in Table 5, where the evolution of the equity market capitalisation of exchange is reported, in the first 25 biggest players on the market, almost the 50% of them belong to the Asian continent. These markets, characterized by a fast growth process, today are not only highly capitalised, but are considered as big players in the capital markets.

Table 5: Evolution of the equity market capitalisation of exchanges from, 1990 to 2019.

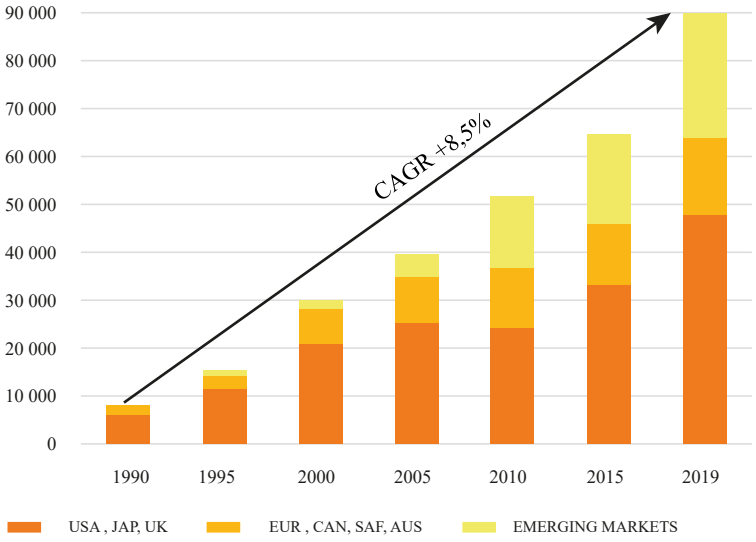
#	Country/Countries	Exchange	Equity Markets Capitalisation ($bn, end of the year)						
			1990	1995	2000	2005	2010	2015	2019
1	USA	NYSE	2692	5655	11535	13632	13394	17787	24 480
2	USA	Nasdaq-US	311	1160	3597	3604	3889	7281	13 002
3	Japan	Japan Exchange Group	2929	3545	3157	4573	3828	4895	6 191
4	China	Shanghai Stock Exchange	....	....	....	286	2716	4549	5 106
5	China	Hong Kong Exchanges and Clearing	89	304	623	1005	2711	3185	4 899
6	Fra-Bel-Ned-Por-Ire	Euronext	525	907	2272	2707	2930	3306	4 702
7	UK-Italy	LSE Group	99	1556	3381	3856	3613	3879	4 183
8	China	Shenzhen Stock Exchange	....	....	....	116	1311	3639	3 410
9	Canada	TMX Group	....	....	770	1482	2170	1592	2 409
10	Saud Arabia	Saudi Stock Exchange (Tadawul)	-	-	-	-	353	421	2 407
11	India	BSE India Limited	....	....	....	553	1632	1516	2 180
12	India	National Stock Exchange of India	-	-	-	516	1597	1485	2 163
13	Germany	Deutsche Boerse AG	355	577	1270	1221	1430	1716	2 098
14	Swiss	SIX Swiss Exchange	158	398	792	935	1229	1519	1 834
15	Swe-Den-Fin-Ice-Baltics	Nasdaq Nordic and Baltics	154	274	730	803	1042	1268	1 613
16	Australia	ASX Australian Securities Exchange	108	243	373	804	1454	1187	1 488
17	Korea	Korean Exchange	100	182	148	718	1092	1231	1 485
18	Taiwan	Taiwan Stock Exchange	99	187	248	476	818	745	1 217
19	Brasil	B3 - Brasil Bolsa Balcao	11	148	226	475	1546	491	1 187
20	South Africa	Johannesburg Stock Exchange	129	277	204	549	925	736	1 056
21	Spain	BME Spanish Exchanges	111	151	504	960	1172	787	797
22	Russia	Moscow Exchange	....	....	....	....	....	393	792
23	Singapore	Singapore Exchange	34	151	155	257	647	640	697
24	Thailand	The Stock Exchange of Thailand	26	140	29	124	278	349	569
25	Indonesia	Indonesia Stock Exchange	....	67	27	81	360	353	523

Source Table 5: Di Noia, C. and Filippa, L., 2021. Looking for New Lenses: How Regulation Should Cope with the Financial Market Infrastructures Evolution. p.12. Binder, Jens and Paolo Saguato (eds.), "Financial Market Infrastructure: Law and Regulation", Oxford University Press, 2021.

The entrance of new exchanges in the world equity market scenario is a way to enlarge the diversification of resources and increase the fragmentation of the global richness across a higher number of players. If at the beginning of the 90's, States as UK, US and Japan were the main players in the world scenario, today the importance of developing economies is representing an authentic change of course. This changing path and the change in the role played by developing countries can be represented by the analysis pf the equity market growth in Figure 22, where the evolution of the equity market is delivered, defined as compound annual growth rate (CAGR). In 2019, in comparison with the 1990, the market was characterized by both an increase in the

size, from almost USD 10000bn to USD 90000bn in capitalisation, and an increase in the number of participants actively operating on the markets, with the strong presence of the emerging markets.

Figure 22: Evolution of the equity market capitalisation from, 1990 to 2019, CAGR. Number represented in billions of US dollars.

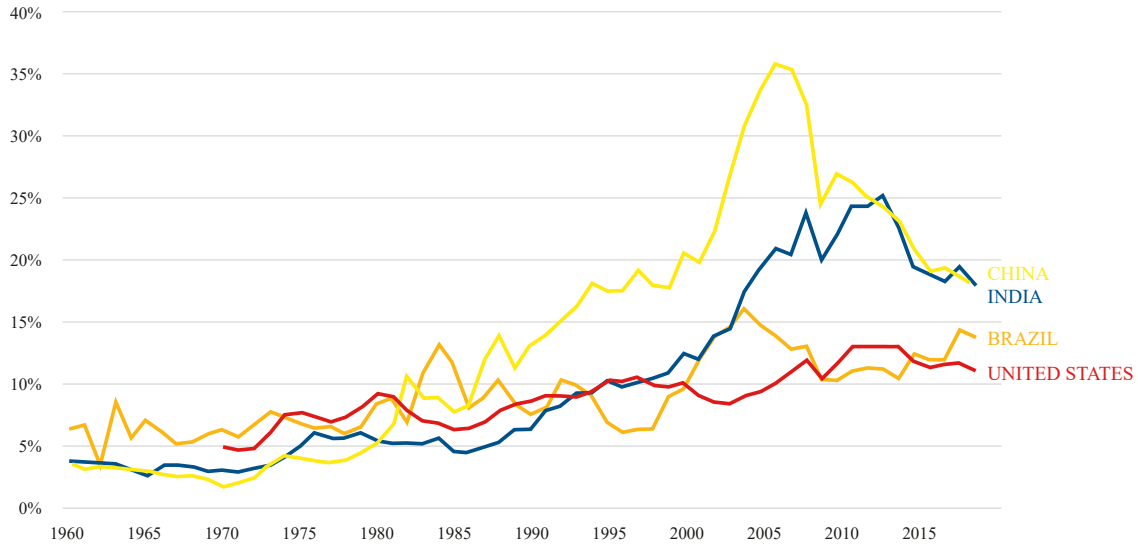


Source 22: Di Noia, C. and Filippa, L., 2021. Looking for New Lenses: How Regulation Should Cope with the Financial Market Infrastructures Evolution. p.13. Binder, Jens and Paolo Saguato (eds.), "Financial Market Infrastructure: Law and Regulation", Oxford University Press, 2021.

The recent phenomena of growth of equity markets of what we usually call developing country is not an isolated case. This kind of markets in the last 20/30 years started a real expansionist policy in terms of economic growth, involving all sectors of the economy. These countries actively increased their internal production and the investments in the financial infrastructure. The high level of production allowed the States to increase their exports, and as consequence to increase the richness of the countries. Through the sell of the internal production to the foreign markets, the extra revenues as consequences could be invested in consumption and further investment development.

An example of the increase in export of these countries is presented in Figure 23, where the exports of goods and services as percentage of their total GDP is depicted.

Figure 23: Evolution of exports of goods and services as percentage of annual GDP from 1960 to 2019.

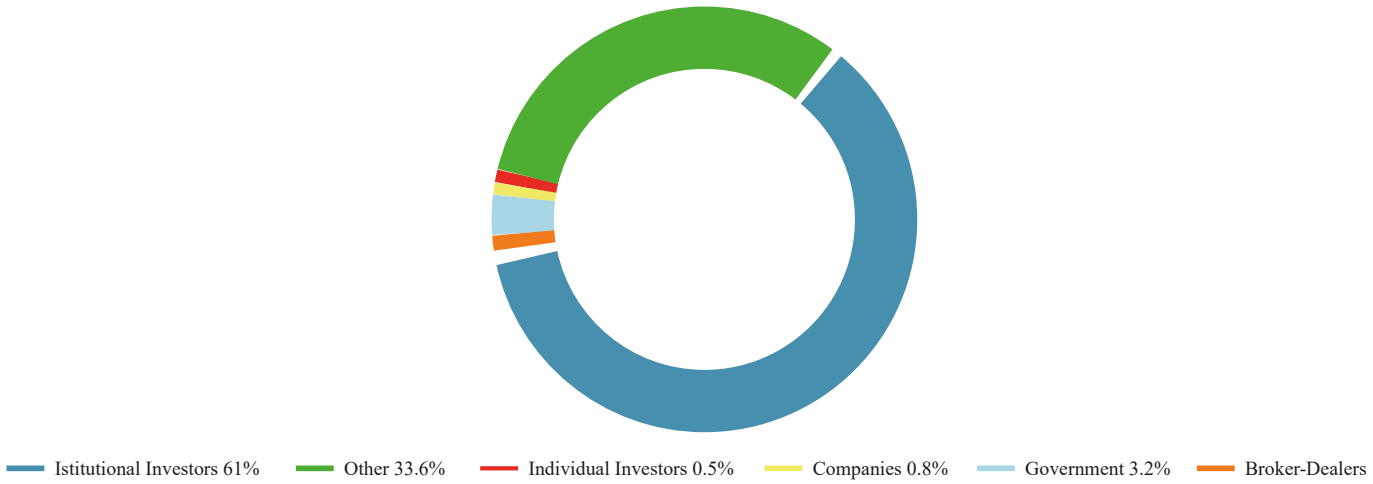


Source 23: World Bank

As mentioned previously the structure of governance of exchanges experienced a change of governance in the last decades, usually referred as demutualisation process.

The ownership of today's biggest exchanges is in the hand for most of institutional investors, but includes also governments, and other types of investors. Figure 24 shows the simple average of stakeholders at the end of July 2021 for the top ten largest exchanges in equity. 61% of the ownership as mentioned is in the hand of institutional investors, and the 3.2% of the total governance is owned by governments.

Figure 24: Simple average of stakeholders at the end of July 2020 for ICE, NASDAQ, Japan Exchange, Euronext, HKEX, LSEG, TMX, Deutsche Borse, ASX, B3.



Source 24: Di Noia, C. and Filippa, L., 2021. Looking for New Lenses: How Regulation Should Cope with the Financial Market Infrastructures Evolution. p.9. Binder, Jens and Paolo Saguato (eds.), "Financial Market Infrastructure: Law and Regulation", Oxford University Press, 2021.

Most of the exchanges in undertaking a demutualisation process, were transformed in public listed companies, trading in several types of securities. Even if this dissertation concentrates on stock exchanges, many other types of exchanges are present, as the one concentrating their activities on cash instruments or derivatives.

As forecasted in the prior session a new type of governance structure is based on a concept of for-profit-organisation of exchanges.

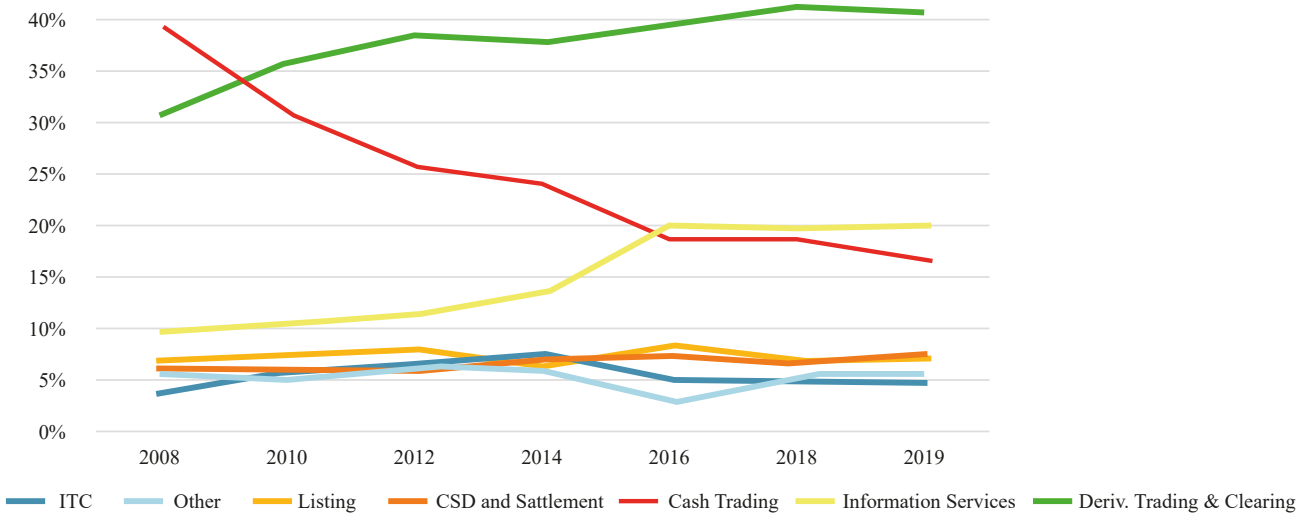
Very interesting is the analysis of the main drivers of exchanges' revenues to understand where exchanges are investing for a further development. The revenues derived by cash trading were the main source of profit for exchanges in the past, but in recent years, from 2008 is possible notice as substantial decline in them, of almost minus 25% from 2008 and 2019. An opposite trend, on the contrary, is represented by the trading of derivative instruments, that represent a particular consequence of the globalisation phenomena.

This kind of instrument in fact started to be present in investor's portfolio at the increase of interaction between markets, and with the increasing complexity of the exchanges and financial structures.

To notice is the increasing importance of revenues from information services, so from the sale of market data. This kind of business started to be particularly important with the development of new technologies, allowing investors to easily set up algorithms and system of screening of thousands of investments in few minutes. This trend is shown in Figure 25, were the exchange revenues breakdown, of the top 10 exchanges for market capitalisation, as percentage of their total revenues is delivered.

Can be the sale of market data the new frontier for a further development of exchanges?

Figure 25: Exchange revenues categories trend as percentage of total revenues from 2009 to 2019 for ICE, NASDAQ, Japan Exchange, Euronext, HKEX, LSEG, TMX, Deutsche Borse, ASX, B3.

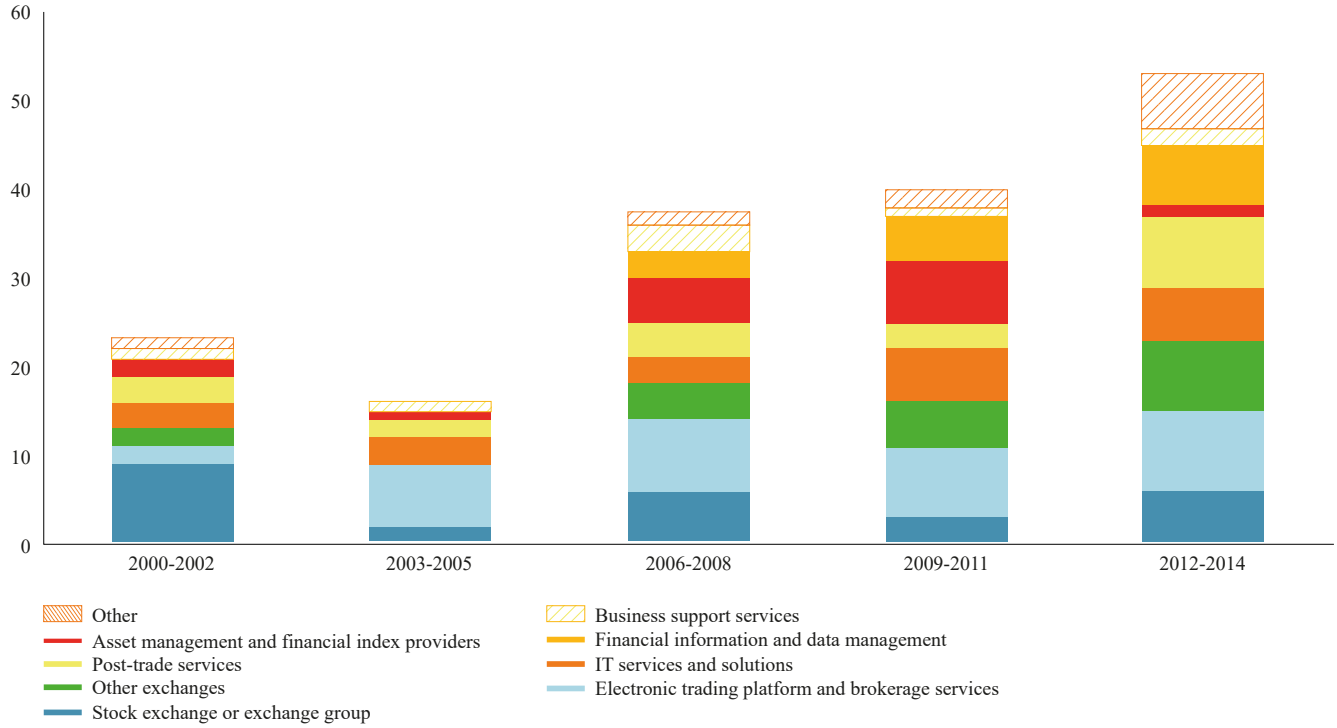


Source 25: Di Noia, C. and Filippa, L., 2021. Looking for New Lenses: How Regulation Should Cope with the Financial Market Infrastructures Evolution. p.17. Binder, Jens and Paolo Saguato (eds.), "Financial Market Infrastructure: Law and Regulation", Oxford University Press, 2021.

An important phenomena appernig on international scale is the increase of mergers and acquisitions of stock exchanges. The increase of competition across exchanges in the world and the need of diversification broght many exchanges not only to grow in dimension in order to acquire an higher market share, but also operate in different countries aquaring other competitors. The market of exchanges result as consequence today to be defined as a concentrated market.

Figure 26 published by the OECD in 2016, described data from 2000 to 2014 concerning 16 stock exchanges mergers and acquisitions. The number of M&A in 14 years more than dubbed, including not only normal stock exchanges but also other entities and business segments of the exchanges.

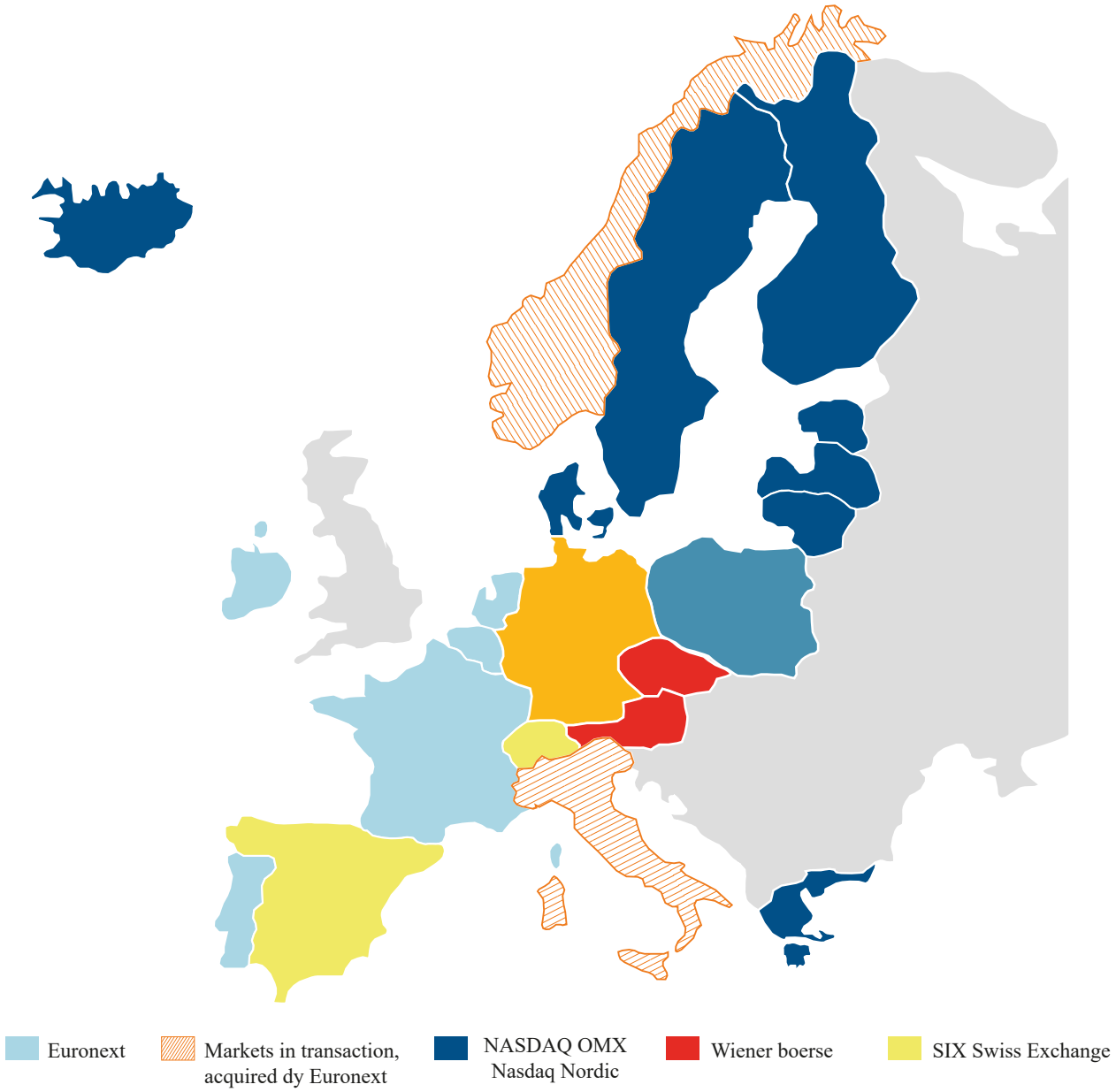
Figure 26: Mergers and acquisitions in the stock exchange industries, based on data from 16 stock exchange from 2000 to 2014.



Source 26: OECD, 2016. Changing business models of stock exchanges and stock market fragmentation. OECD Business and Finance Outlook 2016. OECD Publishing, Paris. p.122.

Particluary interesting for the future discussion on the Capital Markets Union and the empirical incestigation is the analysis of the importance of some group of exchanges in Europe. As shown in Figure 27, the European market of exchanges is characterised by the presence of big groups, conglomerations of national exchnges. The figure in particular easly shows the importance played by Euronext in the European context. Euronext Group can be defined as consequence the referential exchange group for Europe.

Figure 27: most relevant exchange in Europe at the end of 2020.



Source 27: Ambromobiliare, December 2020. Borsa Italiana ed Euronext: mercati per le PMI a confronto.

Chapter 3

Euronext and Euronext-Lisbon

In this section an analysis of the features, structure, and evolution of Euronext Exchange Group, focusing then attention on the Portuguese Equity market is delivered. This chapter is thought to give a reason for the further empirical investigation that will be presented in Chapter 4 and to present some ideas behind this dissertation.

Euronext group can be seen as a pan-European exchange, able to include not only different markets, but to harmonise the internal functioning and structure of the exchanges in the group. Euronext as consequence, as subsequently will be explored in this chapter; can be thought as a prototype of the Capital Markets Union, as regard the harmonisation of exchanges, and creation of a unique market for capitals across Europe.

Although the Capital Markets Union project includes various aspects of harmonisation of capitals, from now on the thesis will concentrate the further investigations only on the equity markets.

The importance of a well-functioning capital market and equity market, as stated before, is fundamental for the recovering project of all Member States and Europe. The current historical moment needs a market for equity not only for the development of a further integration across Member States in Europe, but especially for the burden's transit of possible future negative consequences of the Covid-19 pandemic from the banking system to the equity market.

The European Union, as analysed in the previous chapter, is mostly based on a bank-financing-source system for companies, and the absence of diversification in the source of funding and high regulatory requirement for financial institutions as banks, could represent an important obstacle to the future recover of Europe.

Many regulations were taken in place to manage non-performing loans in Europe after the Euro-crises, but nevertheless, the possibility in the increase of non-performing loans in the next future due to the pandemic, can lead to an instable situation in the funding of companies after the covid-19 pandemic.

In fact, is important to remember that: if banking system will be exposed to an increase in the number of non-performing loans, not only the stability of banking and financial system is in doubt; but also, the possibility for companies to access to funds needed to restructure their activities after the virus.

Euronext can represent in this sense the first experiment for the creation of a functional, efficient, and harmonized exchange for capitals, able to fosters the recovery of Europe and support also the banking system. Nevertheless, have differences across national exchanges to be ignored?

The attention will be on Portuguese market, to understand its structure, composition, and its underlying economy. As it will be explored, differences across economies in the Euronext Group exist, and perhaps a unification of them, using same rules, do not take in consideration some important features of these countries. Different economies, regulations, financial knowledge of a population are suitable for a full integration, or negative consequences need to be faced?

3.1 Euronext

Euronext represents one of the most important exchange group in Europe with a market capitalization of Euro 5085.5 million at the end of 2019. Euronext does not characterize only for its dimension and structure but especially for its governance since it represents a classical example of double entity: an exchange and a public listed company. Moreover, its evolution and harmonization of the different national exchanges that compose the group, characterizes Euronext as a candidate for testing and accessing the consequences of the creation of the Capital Markets Union.

3.1.1 History

The creation of a pan-European exchange, as Euronext can be defined today, starts in September 2000 with the merger of the Amsterdam, Brussels, and Paris exchange; followed one year after by the IPO of the same group in Amsterdam, Brussels, and Paris. The governance of Euronext characterized from the beginning, as a public listed company and not as a mutual exchange.

The new-born stock exchange did not wait too much for the acquisition of a new market, buying in 2002 the Bolsa de Valores de Lisbona e Porto (BLVP), and creating the new branch: Euronext Lisbon.

To keep a common functioning and a common ground in all the markets, in 2004 Euronext debuted with a common trading platform for all the incorporated exchanges.

The process of expansion of Euronext continued in 2006-2007 with the merger of Euronext with the New York Stock Exchange (NYSE). The idea and willingness of creating a giant and a trans-oceanic exchange was in fact expressed by both the involved parts at the press conference after the sign of the merger.

"*In today's marketplace it is not enough to simply be the leader in the United States, it's not enough simply to be the champion of Europe. It is really important to be a global competitor, and that is what we are creating here today*[78]."

The globalisation experience, that the world processed at the beginning of the new millennium, foster by the new technologies, of course also involved the financial markets, and the exchanges as well.

In 2010, the same year in which the merger of Euronext and NYSE found a final form; Euronext started the integration in the trading platforms with a new Universal Trading Platform (UPT) across the European Euronext exchanges. In 2013 the NYSE Euronext was bought by a new buyer, leaving so the Euronext group.

The process of expansion of Euronext in Europe continued in 2018 with the acquisition of the Irish stock exchange, creating Euronext Dublin; and in 2019 with the acquisition of Oslo Børs VPS, creating Euronext Oslo. In October 2020 moreover, Euronext declared the beginning for the process of acquisition of Borsa Italiana, from the London Stock Exchange Group, finalised in April 2021[79].

Following the declaration of the CEO of Euronext Stéphane Boujnah: "Today marks a new chapter in the history of Euronext and of European capital markets. With the completion of the acquisition of the Borsa Italiana Group, Euronext delivers on its ambition to build the leading pan-European market infrastructure,

[78] John Thain, Chief Executive Officer of NYSE group, press conference 2006, announcement merger Euronext and YNSE.
[79] Il sole 24 ore Journal, 29 April 2021. Euronext chiude su Borsa, Intesa e Cdp entrano in aumento.

connecting local economies to global capital markets, for the benefits of all market participants across Euronext's markets[80]."

Figure 28 synthetizes the history of the Euronext group from its creation to April 2021.

Figure 28: The evolution of Euronext Group from 2000 to April 2021.

3.1.2 Key facts and figures

"With this foundation Euronext remains at the heart of Europe's financial markets: secure in its past and confident in its future"[81].

Euronext presents himself as a central exchange in the EU world, having the possibility to work and work in six different market across Europe such as: Amsterdam, Brussels, Dublin, Lisbon, Oslo, Paris and a UK-based market known as Euronext London. This last example of market, Euronext London, cannot be defined as an exchange, in fact is designed to be a representative headquarters of Euronext for UK consumers.

Furthermore, Euronext can count representative offices in Germany, Italy, Switzerland, and Spain.

The exchange internal structure includes different levels and entrance to capital markets, responding to the different need of the listing companies. The Euronext system divide in:

1) Euronext: main market for large and medium market capitalized companies. Euronext further divides in A, B, C submarkets. A - for market cup bigger than Euro 1 billion, B - for market cap between Euro 1 billion and Euro150 million, C for market cap below Euro 150 million.
2) Euronext Growth: Not a regulated market, but a multilateral trading facility market (MTF) for small and medium market capitalized companies.
3) Euronext Access: Not a regulated market, but a multilateral trading facility market (MTF) for small companies, designed for the first stages of growth of them, with less stringent regulatory and transparent criteria.
4) Euronext Access+: Part of Euronext Access and born in 2017. This MTF is dedicated to start-ups and small and medium enterprise (SME's), thought to help this companies in the entrance in other Euronext markets.
5) Bond Match: Not a regulated market, but a multilateral trading facility market (MTF) for bonds in Paris.

As shown in Table 6, in May 2019, Euronext Paris counts the higher number of listed firms both in Euronext as in Euronext Growth and Access. The Lisbon exchange, as well the Dublin, are on the contrary characterized by very small numbers of companies in all segments.

Although the lunch of the project of Euronext Access+, still in 2019, no companies are part of this segment.

Table 6: Companies listed on the different segments of Euronext group in May 2019.

MARKET / LOCATION	AMSTERDAM	BRUSSELS	PARIS	LISBON	DUBLIN	TOTAL
Euronext	131	132	490	43	28	824
Compartment A	66	41	166	13	22	308
Compartment B	25	41	138	9	9	222
Compartment C	42	37	192	21	2	294
Euronext Growth	-	7	196	3	23	229
Euronext Access+	-	-	-	-	-	-
Euronext Access	-	7	169	13	-	189
TOTAL	264	265	1351	102	84	2066

Source Table 6: Euronext, 2019. Euronext FAQ 2019. Euronext publication, 07. p.10.

Of course, these markets have different requirements for the listing process, and different references authorities. In Table 7 is possible to access the different characteristics and functions of these markets. First thing to notice is that not all segments are present in each country; Amsterdam in fact possess only Euronext and in Dublin is present only Euronext and Euronext Growth. As regard Euronext Oslo, that is not presented in the table, it will access only on Euronext and Euronext Growth segments.

[80] Declaration of the CREO of Euronext, Stéphane Boujnah on the 29th of April 2021. Euronext, 29 April 2021. Euronext completes the acquisition of the Borsa Italiana Group and publishes its Q1 2021 Results. Press release.

[81] Euronext, 2019. Euronext FAQ 2019. Euronext publication, 07

Table 7: Eligibility criteria for the companies' entrance in the segments of Euronext.* SMEs: companies, which, according to their last annual or consolidated accounts, meet at least two of the following three criteria: an average number of employees during the financial year of less than 250, a total balance sheet not exceeding EUR 43 000 000 and an annual net turnover not exceeding EUR 50000 000.((UE) 2017/1129).

	EURONEXT ACCESS	EURONEXT ACCESS +	EURONEXT GROWTH	EURONEXT (A/B/C)
Venues	Brussels, Lisbon, Paris	Brussels, Lisbon, Paris	Brussels, Dublin, Lisbon, Paris	Amsterdam, Brussels, Dublin, Lisbon, Paris
Free float	Non applicable	€1m	€2.5m (market cap >€5m for Dublin)	€25% market cap or >€5m (€1m for Dublin)
Financial statement	2 years (if relevant, and no requirement for audited accounts)	2 years incl audited accounts of the last financial year	2 years (audited)	3 years (or 2 for SMEs*) (audited)
Accounting standards	IFRS or local GAAP			IFRS
Intermediary	Listing Sponsor		Listing Sponsor (Euronext Growth Advisor for Dublin)	Listing Agent (Listing Sponsor for Dublin)
Main documents to be provided	- For a Public Offer >€8m in Paris or Brussels or >5€ in Dublin or Lisbon: **EU Prospectus** - For a Public Offer below these amounts or an admission through Private Placement or Direct Admission: - Paris, Dublin and Lisbon: **Information Document** - Brussels: **Information Nota**			
Legal Entity Identifier (LEI)	Yes			

Source Table 7: Euronext, 2019. Euronext FAQ 2019. Euronext publication, 07. p.22.

An essential element to take in consideration in the analysis of Euronext Group is the fact that, although a unification in the insider regulations of the exchanges is present, this is not also true as regard the competent regulatory authority applied, since it changes across countries.

As stated by the European Union, the responsible EU authority for the surveillance and functioning of capital markets in EU is the European Security and Market Authority (ESMA).

The main objective and mission of ESMA is to enhance investor protection and promote stable and orderly financial market[82]. This mission is performed by ESMA by:

- Accessing risk to investors, markets, and financial stability.
- Completing a single rulebook for EU financial markets.
- Promoting supervisory convergence.
- Directly supervising credit rating agencies, trade repositories and securitisation repositories[83].

Although ESMA and the European Union are trying to create common and equal rules across Member States as regards markets, still the present situation delivers a continuous process of general harmonisation. As consequence, each country keeps a certain degree of freedom as regard some aspects of the regulations, even if a general rulebook is provided at EU level. This is resembled also by the fact that one of the tasks of ESMA is the convergence and control of National Competent Authorities for markets in the different Member States. The Euronext Group as consequence has to interface with different national regulatory authorities as regard

[82] European Securities and Market Authority (ESMA). ESMA in brief. ESMA website.
[83] European Securities and Market Authority (ESMA). ESMA in brief. ESMA website.

the process of listing companies, reporting standards and regulations. Table 8 provides a list of the National Competent Authorities with which Euronext has to deal at regular base.

Table 8: National Competent Authority with which Euronext has to deal.

COUNTRY	COMPETENT AUTHORITY
Belgium	Financial Services and Markets Authority
Ireland	Central Bank of Ireland
France	Autoritè des Marchès Financiers (AMF)
Netherlands	Netherland Authority for the Financial Markets (Autoriteit Financiele Markete; AFM)
Portugal	Comissao do Mercado de Valores Mobilitarios (CMVM)
United Kingdom	Financial Conduct Authority (FCA)
Norway	Finanstilsynet , Financial supervisory authority of Norway

Source Table 8: Euronext, 2019. Euronext FAQ 2019. Euronext publication, 07. p.14.

An example of the different approaches that these authorities have on the markets, is the approval of the prospectus of a certain security for the trade in the market.

A crucial element to take in consideration in the case of Euronext, is the fact that, the listing in one specific country do not immediately lead to the listing in all the other countries' markets that are part of Euronext. The multi-listing operation can be organized only on discretion of the issuer, after a formal request.

This characteristic so leads to the creation of a unique organisation, with equal rules, equal functioning, and characteristics, but still divided and different "trading-squares". Euronext keeps as consequence divided national exchanges, but share systems, platforms, and rules across the national exchanges.

Euronext provides different types of services to its consumers and firms as: IPO services, equity and fix-income products trading, derivative trading, publication of market data.

An important feature of exchanges is, moreover, the provision and creation of market indexes, form which also the Euronext Group do not differentiate.

Euronext supplies and manages a high number of indices divided in national, regional, strategy, theme sector indices, some of which are presented in Table 9.

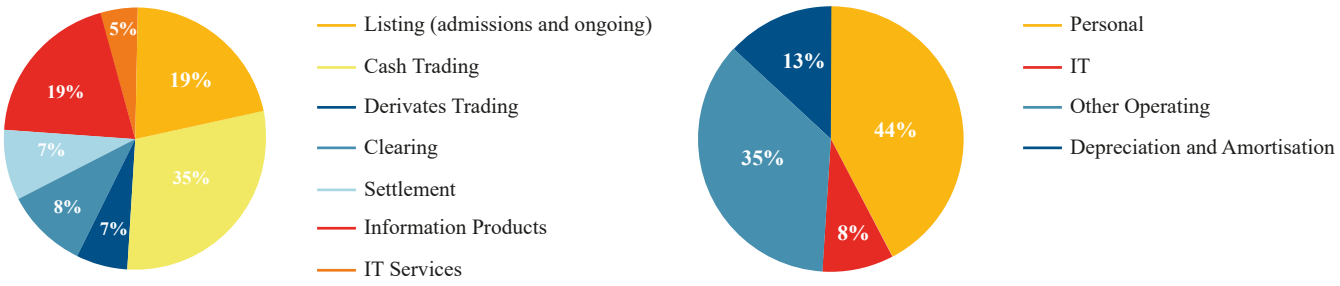
Table 9: Example of indexes provided by the Euronext Group.

Indices		
National indicces	Companies with the highest market capitalisation and the most actively traded shares	
	BEL20	20 largest Belgian stocks traded of Euronext Brussels
	CAC40	40 largest and most traded stocks of Euronext Paris.
	PSI20	20 largest stocks of Euronext Lisbon
	ISEQ20	20 largest stocks of Euronext Dublin
	AEX	25 largest stocks on Euronext Amsterdam
Regional indices	Indices covering a specific geographical area	
	Euronext-Vigeo World 120	Composed of the 120 highest ranking worldwide listed companies evaluated by the Vigeo agency for their management of corporate responsibility
	Euronext IEIF REIT Europe Index	Companies listed on European regulated markets that have opted for a tax-transparency regime
Strategy indices	Strategy indices reflect the performance of a rule-based investment strategy	
	AEX and CAC - Low Risk Indices	
	AEX and CAC- Equal Weight Indices	
Theme indices	Theme indices are indices that follow a specific theme	
	Low Carbon 100 Europe Index	
	Euronext Family Business Index	

Source Table 9: Euronext, 2019. Euronext FAQ 2019. Euronext publication, 07. pp.40 - 41.

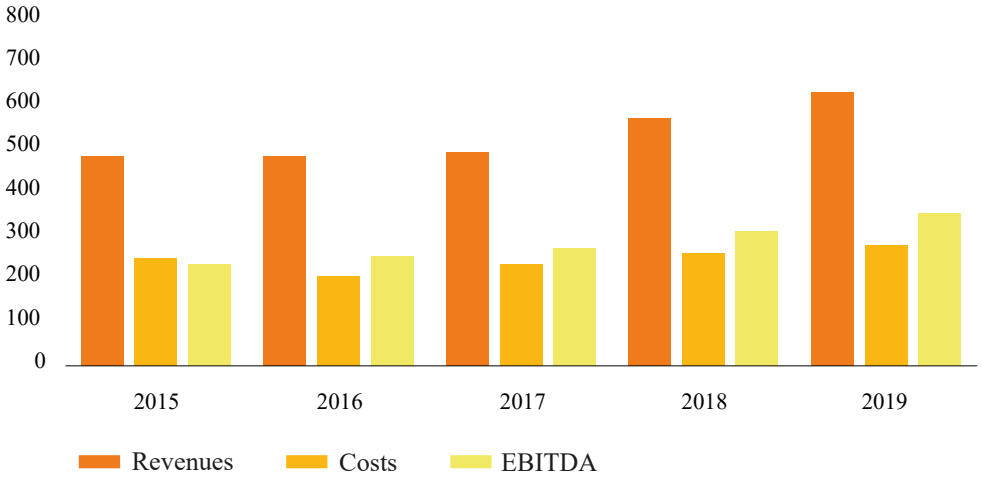
Looking closely at the various sources of revenues of Euronext as a single entity in 2019 is possible to have a clear idea about the different services offered by the exchange and the costs/investment that Euronext supports. As reported by the Federation of European Securities Exchanges (FESE) in 2019, the higher share of revenues for Euronext is represented by listing activities (19%), cash trading (35%) and information products, so market data (19%), as shown in Figure 29. The fact that in 2019 revenues from the selling of market data and listing activities are equal, can suggest to the reader the importance of exchanges as provider of data. In some way it seems that, due to the scarcity of activity in capital markets, especially IPO, exchanges found an alternative way to survive. Costs related to Euronext activities are mainly labour costs (44%), information technologies (8%), and other operating costs (35%). Is quite particular to notice that the labour costs represent the higher share of costs for the exchange, and the IT costs represent only the 8% of them. This can lead to the thought that maybe an investment by the Group can be done in the future on new technologies to reduce costs related to human activities.

Figure 29: Revenues and Costs breakdown of Euronext for the year 2019.



Source 29: FESE, 2019. European Exchange Report: 2019. FESE Economics and Statistics Committee. p.12.

Figure 30: Main financial results of Euronext for the year 2019, expressed in millions of Euros.



Source 30: FESE, 2019. European Exchange Report: 2019. FESE Economics and Statistics Committee. p.12.

Moreover, in 2019 Euronext declared an EBITDA of €377.5 million, with a €679.1 million in revenues, increasing the gap between costs and EBITDA from 2015 to 2019 (Figure 30). The ability of Euronext in increasing its size and its revenues do not have to be ignored in the evaluation of a potential future expansion in other European exchanges.

3.2 Euronext: a prototype of the Capital Markets Union

Is possible to find some asymmetries in the strategic path undertaken by Euronext in the acquisition and harmonisation of exchanges and the creation of the Capital Markets Union.

If from one side we have the need of increase the business geographic and strategic competitiveness of one exchange group, on the other side the EU Capital Markets Union tries to harmonise the exchange of capitals across countries.

As in prior chapter mention, the form and structure of the Capital Markets Union is today still ambiguous and seems that the registered achievements, by the EU in its creation, are still in the form of general goals, without a defined architecture, as the one created for the Monetary Union and the Banking Union.

Can the Capital Markets Union assume the form of a unique exchange? If it is so, how we can assume it will be developed and structured?

Differences across countries are a matter of fact and following the EU method; to access the harmonisation of capital markets, changes will not take the form of a sudden earthquake in the present management of the capital markets.

An exchange structure as the one proposed inside the Euronext group, can represent the solution for the creation of the CMU and the starting of the approximation process in regulations and behaviours in capital markets across countries?

If the answer is yes, Euronext can be seen a prototype of the future evolution of the Capital Markets Union, and accordingly, is possible to access the consequences in the creation of a unified exchange across Europe.

In this thesis, the CMU is analysed under the profile of stock exchanges, tanking this prospective as one of the possible architectural future scenarios in the creation of the EU project for capital markets.

Of course, the creation of a unified exchange has not to be only one part of the Capital Markets Union, since it must also include the creation of proper regulatory structure, other bodies incentivizing the rising of capitals in the markets and of course the creation of a "culture of the market". A financial knowledge, and a culture for investments has in fact to be present in the evaluation of the creation of the Capital Markets Union.

How can we pretend the use of capital markets as financing sources, if firms, investors and interested parties do not have the adequate knowledge and predisposition to access it?

This theme was in fact discussed also in the last action plan for the creation of the Capital Markets Union, where the importance of a ground financial knowledge in the European population was stressed.

Other two particularly important issues that must be taken in consideration in the creation of a unique exchange group in the prospective of the Capital Markets Union, are the degree of freedom given to the single exchanges, and the governance of the exchange as a total body.

The first issue at the stage is the degree of freedom of the national exchanges. In Euronext, the different exchanges maintain a separate entity characteristic as regard the trade list since multi-listing is possible only on expressed request of the company. Nevertheless, the structure and regulations in the different Euronext exchanges are similar, and contacts between them are eased in respect to contacts between different groups of exchanges.

The application of this structure allows the single national markets to keep their borders but harmonize across them and to acquire a more international visibility. It will in fact be easier for an investor, that operate now in one exchange inside the group, to access and have information on the other companies traded in a different branch of it. At the same time, for companies, can be easier to afford a multi-listing procedure since they already know the functioning and regulation of the exchange.

This can be the first step to create a unified exchange with only one list of securities across countries, but it can also represent the final goal in the creation of a harmonized exchange group for the European Union that maintain singular national characteristics.

It is possible in fact to consider that: exist national characteristics of the different exchanges representing a source of richness for all the system, and national exchanges composition in many cases reflect the national type of market.

A good example, to understand this, is the comparison between the norther and southern countries of the European Union. States as Germany are characterized by medium-large companies, able to access the most market capitalised segment of the exchange, but southern countries as Portugal or Italy have a market based on SME's and family-owned firms, that positioned in the lower capitalized segment of the exchange.

The underestimation of these differences can cause a distortion in the functioning of some national exchanges and increase barriers in some countries for firms accessing the market.

The EU market is composed by many little national markets that still must benefit all by the EU policies.

Nevertheless, on the point of view of regulations, the creation of a single exchange, both maintaining national segmentation or unique, will push a further harmonisation between National Competent Authorities that will start to increase their harmonization in a natural way.

The second issue at stage is the governance that in theory this new "European Exchange" has to undertake.

Euronext present a for-profit structure, in the hands of many shareholders, that acquire share of it through the buying of its shares in the market.

Should a European exchange be in the hands of the EU and National States or be in the hands of private and/or institutional investors? Should the new exchange be a publicly traded company, following a demutualization process? Should be a for-profit or not-for-profit organization? Do we need to add some restrictions on the possible shareholders acquiring it? Should EU shareholders have the right to buy and control the exchange or also foreign investors?

All these questions are big sources of further research and need to be closely analysed by the EU institutions for the creation of the Capital Markets Union.

Nevertheless, still Euronext today represent the unique relevant prototype of a European exchange, combining different national markets across Europe.

A crucial element that has to be stressed, although the long discussion that are taking place around the creation of the Capital Markets Union, is the necessity of a second reliable source of funding for companies in the immediate future. Both in the form of unique exchange or in the form of a single group of exchanges "segmentate" across national border, Europe today for the recovering from the present Covid-19 pandemic

need an efficient exchange system.

Is not possible to think that decisions about a form of funding different from the banking system can be taken only in few years, when the recovery of Europe will be fundamental, but this kind of actions need to be premeditated and predicted.

The banking system in Europe is fundamental for companies, but if it will be stressed by the presence of too much non-performing loans created by the present Covid-19 pandemic, how can companies and SMEs recover from the terrible consequences of the virus?

3.3 The Portuguese Capital Market and Euronext

In this dissertation the focus is on the analysis of Euronext Lisbon, and how the entrance in a multinational exchange scenario affected the Portuguese Capital Market. To follow a logic path in the analysis, first a small historical excursus about the Portuguese Stock Exchanges evolution and Euronext-Lisbon will be presented. A small snapshot of the Portuguese economy today, focusing of the composition of firms and their source of financing will be examined at the end of this chapter.

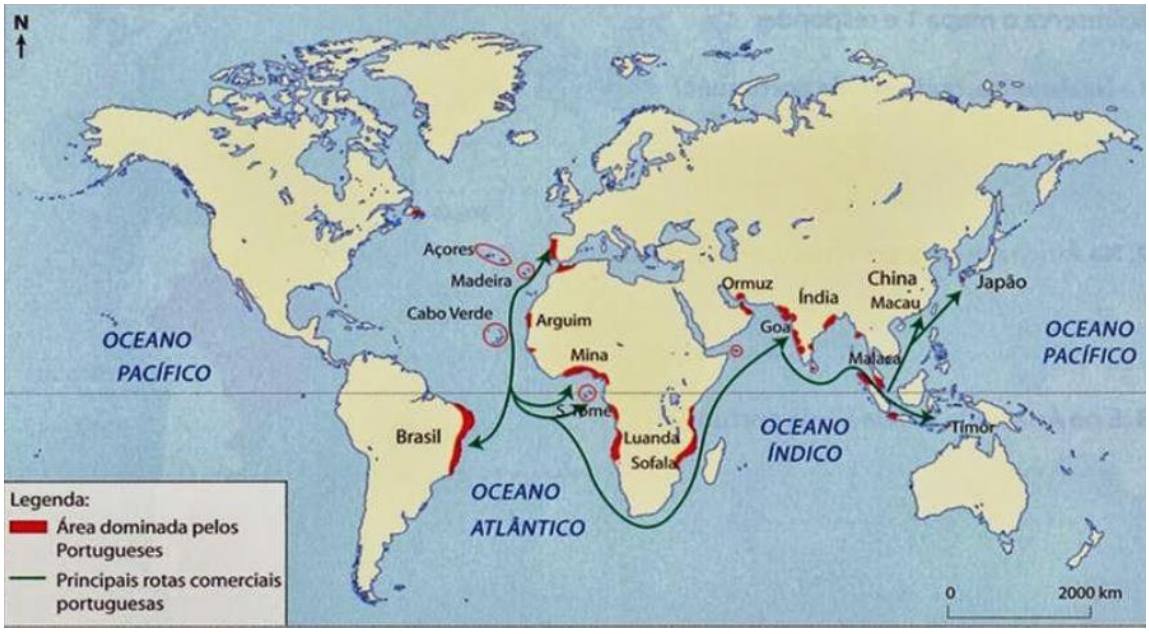
3.3.1 Portuguese exchanges historical review

The importance of the Portuguese capital market does not have to be ignored, since it represents one of the most ancient form of market, and due to its past as pioneer in the commercial routs in the oceans, Portugal experienced a real gold age.

Officially the Lisbon Stock Exchange was founded in 1769, but an archaic form and a quite visionary form of exchange in Portugal and in Lisbon was present since the 14th and 15th century.

Lisbon, due to its strategic geographic position, was considered one of the centres of the worlds and the main harbour for trades during the 15th century. From Lisbon the Portuguese monarchy controlled the routs and colonies in South America, Africa, and India. In Figure 31 the main commercial routes of Portugal in the 15th and 16th century are shown.

Figure 31: Map of Portugal and its colonies, in red and the principal Portuguese trade ruts in green, during the 15th and 16th century.



Source 31: Biblioteca Escolar. Recursos Temáticos História E Geografia De Portugal 5º, Sec. XV, XVI. p.4

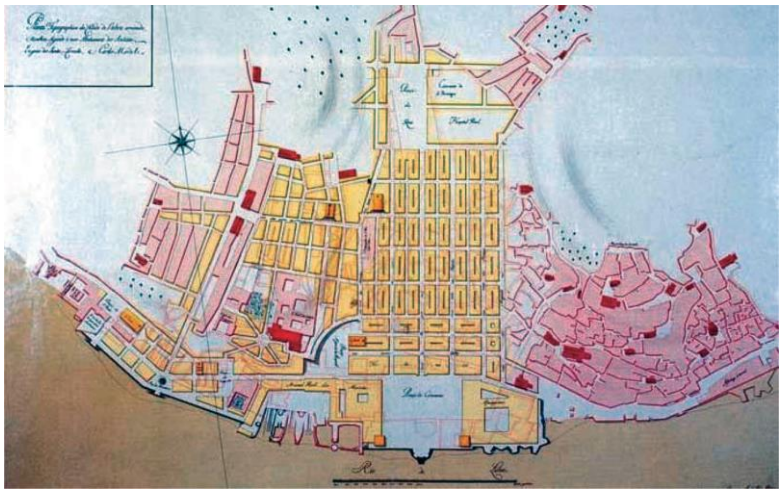
Portugal played an important role in the geographic discoveries of the century and was responsible of the creation of important maritime routs around the globe. The grandfather of the modern capital markets and stock market was at the base of all this routs. The "market" (as will be define in this section this rudimental but efficient form of exchange) was at the base of two main activity: the allocation of capitals to finance the new discoveries and trades; and the creation of insurances, and related risk premium, for hedge explorers and

boats during the long and tedious travels. A sort of primitive derivative contract was created in the form of insurance. The presence of this primordial market was known and used by all the businesses involved in merchant trades and activities. The importance and a sort of legitimation of the presence of this market, can be found in some important document even in 1342. This kind of market in fact was organized with specific rules and provide work to a sort of primordial brokers, defined as "corretores". These brokers were specialized professional figures in charge of writing contracts, clauses, and agreements between the parties in the market. A Portuguese law of 1342 defined rules, trading fees and commissions (corretagens) that had to be applied in all the market's transactions. The legitimation and importance of the broker business can be recognized not only at the regulatory level, but also from the point of view of the creation of a new social class. This kind of figure was not only socially accepted, but with time it started to be defined as a social status. In a low of 1491 is possible to find a reference about brokers, how could participate and take a ranked social status in a famous annual procession, the "Corpus Christi Procession". With later regulations brokers were grouped in corporations and subject to implemented transparency rules. The brokers 'business involved maritime transportation, insurance premia, credit, letters of exchange, foreign currency, international trade, and lending activities to the government[84].

If at the beginning the only a form of financing was equity, at later stage domestic public debt started to be an important tradable instrument, especially in the Lisbon market; due to the monarchies' activities linked with the Cape route.

In 1755 Portugal experienced a big earthquake, that destroyed most of the southern part of the country and some part of the city of Lisbon. In Figure 32 is possible to notice a map of the rebuild project of the city of Lisbon after the catastrophe by Eugenio dos Santos and Carlos Mardel.

Figure 32: João Pedro Ribeiro. Copy of the adopted plan for Lisbon by Eugénio dos Santos and Carlos *Mardel. Lithography (1947).*



Source 32: Mata, M.E., da Costa, J.R. and Justino, D., 2017. The Lisbon stock exchange in the twentieth century. Imprensa da Universidade de Coimbra/Coimbra University Press. p.183.

This earthquake brought the brokers of the time to ask some finance to build what subsequently will be called

[84] Mata, M.E., da Costa, J.R. and Justino, D., 2017. The Lisbon stock exchange in the twentieth century. Imprensa da Universidade de Coimbra/Coimbra University Press.

the official Lisbon Stock Exchange. In 1769 the project was completed, and the exchange officially opened. The financing of this opera arrived from the Prime Minister of that time, that placed the exchange as an independent section of the Ministry of Finance.

The bond market required a little more time to be implemented, and only in 1796-1797, the first official trade of letter of exchange (similar to bonds) and public debt was present in the Lisbon Exchange.

The Lisbon stock exchange was not the only one in Portugal. To be underline is the Porto Stock Exchange in the north of the country, that followed a later development. The Porto Exchange was officially created in 1891, even if it was present also before, in a less established way. In this case, the development of the Porto exchange has to be addressed to the export of Porto wine and commercial interaction with France and Grain Britain.

During the 19th century Portugal experienced a modernisation process of its financial sector with three notable events:

1. The creation of a modern regulation on brokers in February 1825 known as "Livro do Regimento dos Corretores".
2. The settlement and creation of the first bank in Portugal in 1821: "The Bank of Lisbon"
3. The creation of a Commercial Code in 1833

Interesting is to notice how exchanges were the main financial institution in Portugal for decades, fulfilling mostly the capital needs of the country and its businesses[85]. The first Portuguese bank in fact is dated only 1821.

The presence of two stock exchanges, Lisbon and Porto, allows the reader to understand the importance of both the commercial relations of Portugal and of the capital flow needed at that time in the country.

A new Commercial Code was later created in 1889, setting exchanges as private entities, controlled by local commercial association of the reference town in which they were located. As consequence, as for many exchanges across the world, also the Portuguese exchanges assumed an initial mutual characteristic. Exchanges were controlled by private groups of brokers and private commercial companies.

During the end of the 1960's exchanges started to enlarge their activities, forcing the government to publish a new Code in January 1974. The new regulation determined the nationalisation Porto and Lisbon exchanges, that from that moment were autonomous departments of the ministry of Finance. This nationalisation has to be ascribed also to the political changed that Portugal faced in those years, since Portugal in 1974 adopted a military-political regime, with the Revolução dos Cravos.

In 1999 Portugal started a process of general updating of the legal environment, transforming exchanges in semi-private not-for-profit civil associations under the control of local brokers and banks, even if the governments maintained a strong role on strategic issues.

In 2000 Porto and Lisbon market exchanges joined becoming the Bolsa de Valores de Lisboa e Porto (BVLP). A full commercial and for-profit exchanges born, whose shareholders were initially the previous members of the two merged exchanges.

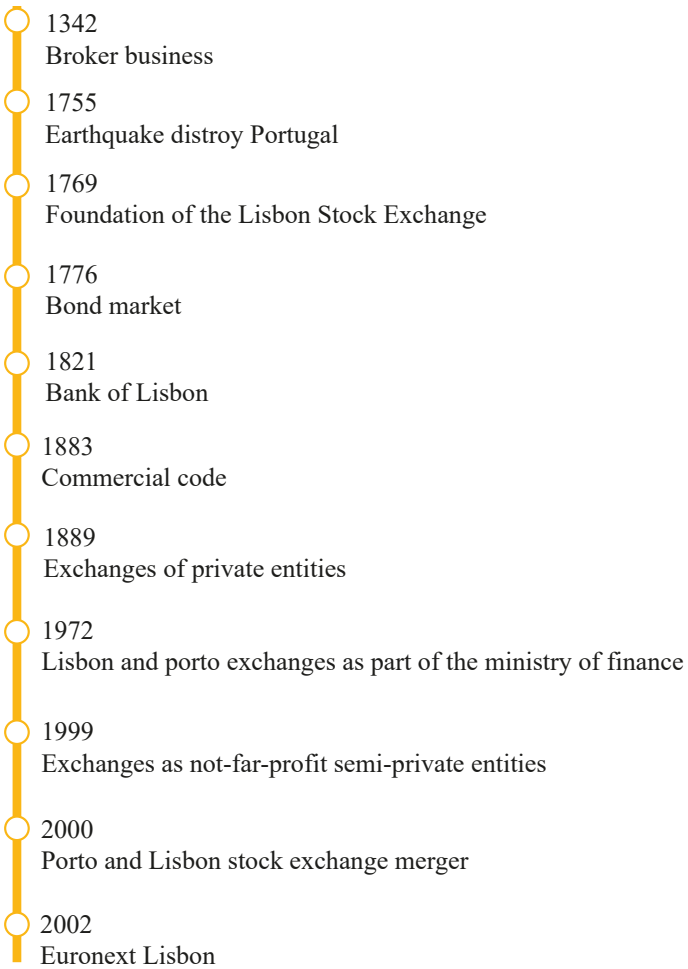
[85] Mata, M.E., da Costa, J.R. and Justino, D., 2017. The Lisbon stock exchange in the twentieth century. Imprensa da Universidade de Coimbra/Coimbra University Press.

The entrance of Portugal in the European Union facilitated in fact, the privatisation and not interference of the Portuguese government in the economy and on the exchanges.
In 2002 the Bolsa de Valores de Lisboa e Porto was then acquired by the Euronext Group and as consequence transformed in Euronext-Lisbon. This change of governance transforms the exchange's business in a for-profit company.

3.3.2 Euronext Lisbon

The main exchange activity in Portugal remained eradicated for years in the two main exchanges, Lisbon and Portugal, even if, the legal basis for an extension of the services provided by them in other towns was present. The importance in size of the Lisbon exchange do not have to be ignored in comparison with the other exchanges. Porto, differently from Lisbon, grounds its importance to the important financial transaction that the country was setting up with the norther regions of Europe.
The integration of Porto and Lisbon stock exchanges started in 1991 with the adoption of the same and common-automated system of trading and post-trading, named TRADIS, able to interconnect the two exchanges. In that year, the new company "Interbolsa", found in Porto, took the responsibility to closely look and vigilante on all the operative actions of the post trading activities.
Finally, in 2000 the Porto Stock Exchange and Lisbon Stock Exchange merged, creating the new Bolsa de Valores de Lisboa e Porto. In June 2001, a formal agreement was reached by the new Portuguese Exchange and Euronext Group, setting the bases for the new merger of 2002. Formally, on 1st February 2002, the new branch of Euronext, Euronext-Lisbon borne in Lisbon, from the experience and activities of the Bolsa de Valores de Lisboa e Porto.

Figure 33: The evolution of the Portuguese market



3.3.3 Portugal snapshot

An analysis of the Portuguese stock market was published in 2017 by the Coimbra University of Portugal[86]. In this section the conducted analysis will be presented, pointing-out some interesting facts reported by this research, and some other elements reported by later studies of the Portugal Government and international monitoring agencies and companies.

Table 10 reports some interesting data about the number of shares and their characteristics in the Portuguese market from 1930 to 2010 of the Lisbon Stock Exchange. From 1945 to 1973 the number of listed companies followed an increase in its number from 104 to 145, driven mostly by the increase of the colonial related firms. Although the increase in the shares' number, linked mostly to change in the economic and social evolution of Portugal in those years, the importance of equity as source of funding, remained relatively low in comparison to the year-end global nominal share capital of the listed companies with the Portuguese GDP[87].

Looking closely to data, to the shares of the ten largest listed companies, is possible to notice that the 10 biggest firms owned almost 50% of the total capital of the exchange, in contrast to the 10 smallest companies, that do not reach even the 1%. This implicitly means that the remaining 85-125 companies, own the remaining 50% of the market capital in the period 1945-1973. This delineate a Portuguese market and economy based

[86] Mata, M.E., da Costa, J.R. and Justino, D., 2017. The Lisbon stock exchange in the twentieth century. Imprensa da Universidade de Coimbra/Coimbra University Press.
[87] Mata, M.E., da Costa, J.R. and Justino, D., 2017. The Lisbon stock exchange in the twentieth century. Imprensa da Universidade de Coimbra/Coimbra University Press, p.227.

on medium and small enterprises, playing a consistent role at that time; even if for raising capital, the equity market was more relevant for bigger companies. From 1973 to 1977 is possible to see a dramatic change in the number of listed stocks, from 145 to 35. This phenomenon can be explained by many political and social events, as the independence of the Portuguese colonies, that stood for a big source of wealth for Portugal; and series of economic crises till 1985 that push out investors from the Portuguese market.

The turning point for the Portuguese market was the election of 1985 of the Prime Minister Cavaco Silva[88], who created a strategic plan for the growth of Portugal and the reestablishment of the Portuguese equity market. In all this discussion is important to remember the military-political regime adopted in Portugal in 1974, that controlled and nationalized many companies and segments of the real economy. The entrance of Portugal in the European Economic Community represented for the country a moment of revision of the structure and importance of the government's intervention on the real economy. The rules and competitive policies of the EU led the Portuguese government to not intervene further in the management of domestic firm and interventions in the equity market.

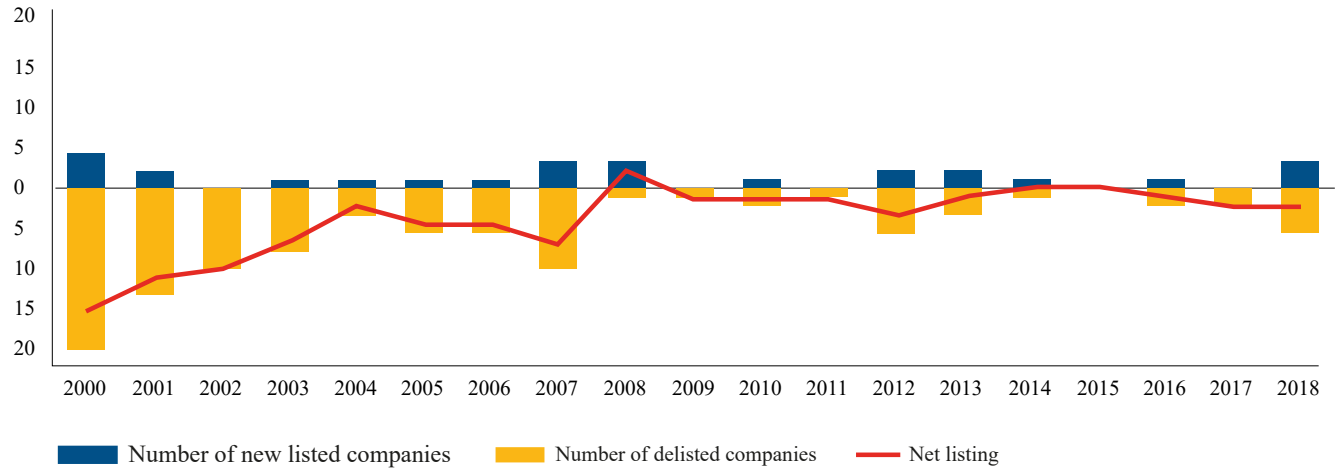
[88] Centre-right politician

	1930	1935	1940	1945	1950	1955	1960	1965	1970	1973	1977	1980	1985	1990	1995	2000	2005	2010
Total n of Listed Companies	112	98	104	104	110	123	132	137	136	145	35	25	46	181	169	166	77	69
Banks	10	9	8	10	11	11	12	13	12	17								
Insurance	15	15	17	18	17	20	19	20	24	25								
Texile industries	4	4	5	5	5	5	5	5	5	4								
Railways	4	4	4	5	3	3	2											
Utilities								17	12	12								
Others	46	42	47	45	51	56	60	49	50	53								
Colonials	33	24	23	21	23	26	34	33	33	34								
Total Share Capital Listed on BVL (PTE 000 000), (EUR 000 000)	948	1031	1059	1727	3251	5897	9353	13318	23318	35622	2661	3686	37314	502249	1471316	17990	21178	31722
Share of the 10 largest	59.32%	66.02%	59.71%	50.11%	53.25%	50.16%	49.92%	48.55%	54.39%	45.96%	62.31%	84.07%	83.20%	41.90%	42.34%	71.83%	81.39%	78.20%
Share of the 10 smallest	0.18%	0.22%	0.25%	0.21%	0.11%	0.06%	0.04%	0.03%	0.02%	0.01%	1.26%	5.89%	0.85%	0.34%	0.16%	0.08%	0.06%	0.06%
Share the middle others	40.50%	33.76%	40.04%	49.69%	49.64%	49.78%	50.04%	51.42%	45.59%	54.03%	16.42%	10.04%	15.95%	57.76%	57.50%	28.42%	21.39%	21.74%
Share of the 50 smallest	4.36%	4.84%	3.83%	3.53%	2.98%	1.83%	1.30%	0.65%	1.23%	0.63%	N.A.	N.A.	N.A.	3.79%	2.08%	2.52%	3.80%	7.65%
GDPmp (PTE 000 000), (EUR 000 000)	18239	19765	19990	39989	56092	70572	88994	135681	212358	342617	722257	1476316	4131014	10072063	15912873	115548	127490	162163
Total Share Capital in % of GDP	5.20%	5.21%	5.30%	4.32%	5.80%	8.36%	10.51%	9.82%	10.99%	10.45%	0.37%	0.25%	0.90%	4.99%	9.25%	15.57%	16.61%	19.58%

Table 5: Total number of listed corporations on the Lisbon Stock Exchange from 1930 to 2010. Daily Bulletins of the Lisbon stock exchange and BVL Historical archive. Source: Mata, M.E., da Costa, J.R. and Justino, D., 2017. The Lisbon stock exchange in the twentieth century. Imprensa da Universidade de Coimbra/Coimbra University Press. p.229.

The liquidity of the market plays an important role in the attraction of investors, and so an occasion of enrichment for firms and, from a general vision, for the national economy. Therefore, is so important for the equity market to count a high number of listed companies. This asks for a continuous change in the structure and number of the companies present in the market, as many firms can incur in some losses or failure, the importance of IPO is fundamental. In 2020 the OECD published a study of the Portuguese capital market, focusing the attention on its growth and future development[89]. Following the reported analysis at the end of 2019 only 47 companies were listed on Euronext Lisbon, almost 25 percent less in respect to 1990. As Figure 34 shows, from 2000 the Portuguese equity market experienced a high decrease in the number of IPO and, on the contrary, the increase of the number of delisting companies, resulting in an impoverish equity market, both as regard the number of operating companies in it, as its liquidity. Only in 2007, early 2008, the number of new IPO was able to overstep the trend of negative delisting affecting the equity market.

Figure 34: Number of listed and delisted Portuguese companies.



Source 34: OECD, 2020. Capital Market Review of Portugal 2020: Mobilising Portuguese Capital Markets for Investment and Growth, OECD Capital Market Series. p.117.

A common measure for the liquidity of a market is its turnover ratio[90]. Figure 35 provides a confront between the Portuguese turnover ratio between 2006 and 2018 and the other members of the Euronext group. The Portuguese turnover ratio is lower than the one of the other markets in same exchange group. the Portuguese liquidity turnover results to be significantly lower than the one in France and Netherlands, but still higher than Brussels. Moreover, all these 4 markets are quite low compared to other important world markets.

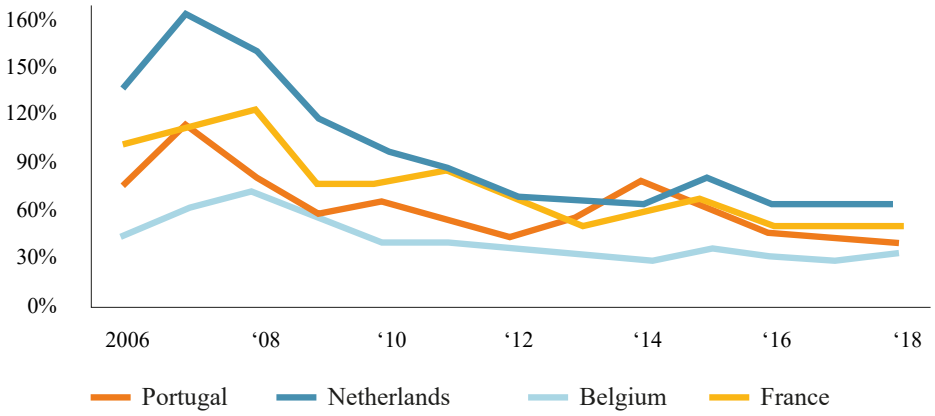
As reported by the OECD analysis in 2018, the liquidity turnover ratio in Euronext group was 52% in Paris, 64% in Amsterdam, 41% in Lisbon, in contrast of markets as Germany (92%), Japan (119%) and US (108%) that are characterized by a relevant and higher liquidity.

Is possible to conclude that the present Portuguese market appears to be low in liquidity, due to its low number of firms present in it, and the low number of IPO in respect to delisting firms.

[89] OECD, 2020. Capital Market Review of Portugal 2020: Mobilising Portuguese Capital Markets for Investment and Growth, OECD Capital Market Series.

[90] Liquidity turnover ratio = total number of shares traded during one period divided by total number of share outstanding for the same period.

Figure 35: Stock market turnover ratio from 2006 to 2018. The sample has information for all listed companies and MTFs as of end 2018. It excludes all types of funds.

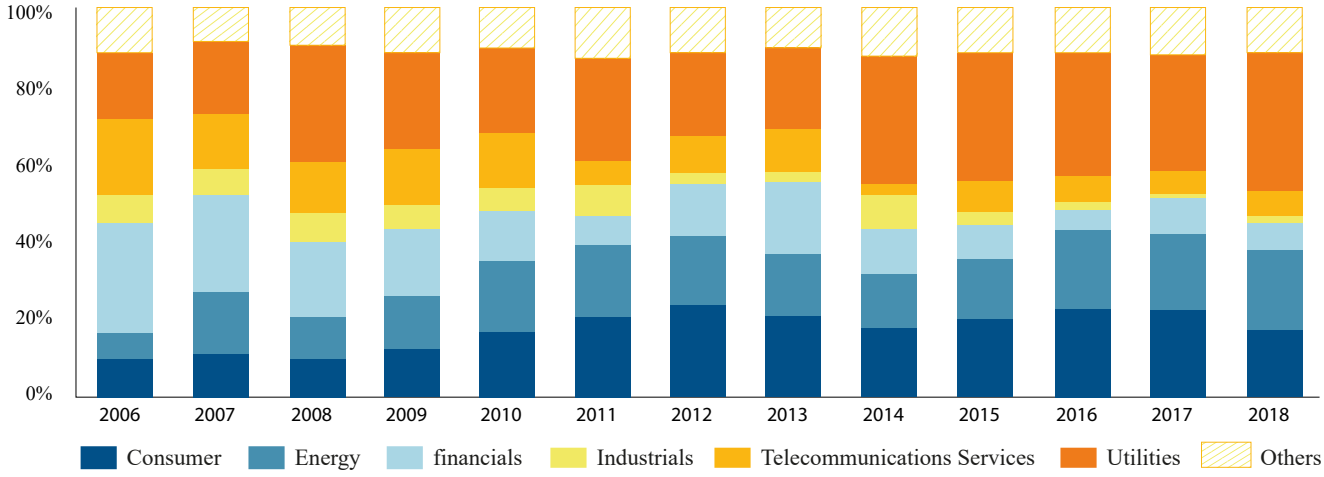


Source 35: OECD, 2020. Capital Market Review of Portugal 2020: Mobilising Portuguese Capital Markets for Investment and Growth, OECD Capital Market Series. p.43.

A close analysis of the composition of the Portuguese market can reveal how the participation of some segments of the economy in the rising of funding from the equity market is substantially low.

Figure 36 shows how the participation of financial companies to the equity market declined substantially from 2006 to 2018, from almost 30% of the total listed companies to less the 10%. In this case, since the high number of delisting, the increase in shares of the utility sector and consumer once do not have to be interpreted as index of the new importance of these segments in the market, but as the consequence of the rebalancing of shares between the few remaining players in the Portuguese equity market.

Figure 36: Market capitalisation of Portuguese companies for different industries from 2006 to 2018.



Source 36: OECD, 2020. Understanding Delisting from the Portuguese Stock Market. OECD Capital Market Series, Paris. p.12.

If, as shown in this section the Portuguese participation of the financial market is limited, where firms and companies apply for raising funding in Portugal?

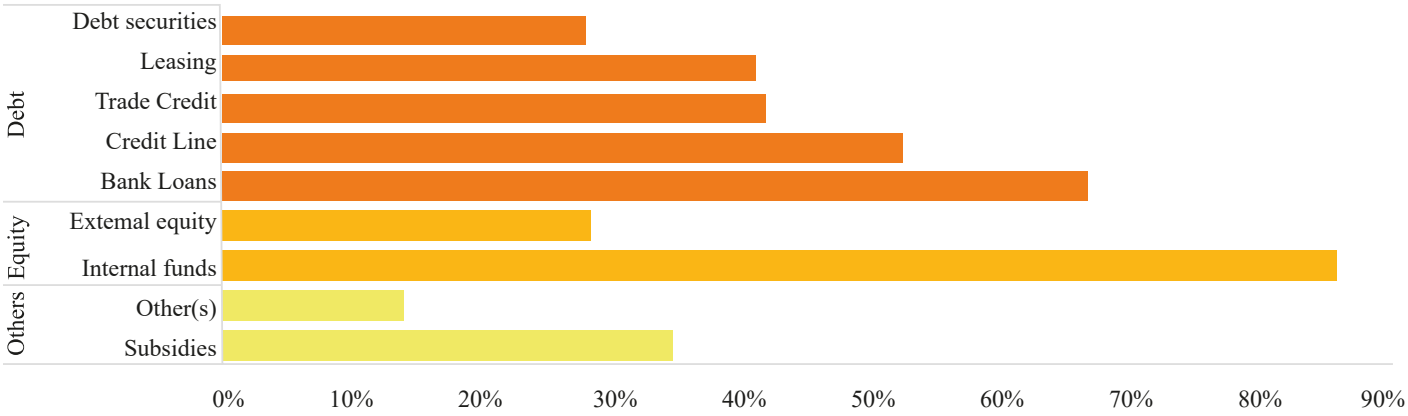
The OECD in its report also provides the results of a survey conducted on 275 companies in Portugal, in which different questions about their financial preferences, and future intention were proposed.

From one of these results appear clear how important the banking sector for this country is.

Figure 37 shows graphically the answers of the 275 interviewed companies. The main financing source for companies are internal funds from the entrepreneur itself, family, friends; followed by the use of the bank

channel. As presented in the previous chapters, also Portugal grounds the maintenance and finance of its economy and companies in the banking and debt sector.

Figure 37: Financial sources by importance, answers of 275 Portuguese companies.



Source 37: OECD, 2020. Capital Market Review of Portugal 2020: Mobilising Portuguese Capital Markets for Investment and Growth, OECD Capital Market Series. p.89

This situation is furthermore confirmed by the National Portuguese Economic department that publishes some economic indicators and research about its economy and financing preferences of companies[91].

Table 11 illustrates the evolution in the structure of funding of companies in Portugal as percentage of total assets. The table distinguishes between SME's and big companies, allowing a better understand of the structure of financing in Portugal. Although the use of equity is relatively low for both type of companies, 37,7% for SMEs and 35,4% for big companies in 2019; is possible to see some differences across the evolution of this data. From 2011 SMEs started to increase their funding on an equity base technique, on the contrary, we notice an inverse path in big companies. This suggests that big Portuguese companies, with grater bargaining power, can access with more favourable conditions to other source of financing instead of small companies[92].

Table 11: Structure of funding as percentage of total assets from 2009 to 2020.

	PMEa/Small and medium corporations													Grandes empresas/Large corporations											
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2T20	A2009-20	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2T20	2T20
Fontes de financiamento/Sources of funding (%)																										
Capital proprio/Equity	**26,9**	**26,9**	**25,8**	**25,2**	**26,9**	**27,9**	**30,4**	**31,9**	**33,3**	**35,4**	**37,3**	**37,7**	**10,8**	**32,8**	**36,5**	**35,9**	**34,8**	**33,5**	**31,7**	**32,9**	**32,3**	**32,2**	**34,9**	**35,4**	**34,8**	**2,0**
Financiamento obtido/Obtained Funding	37,9	40,0	40,9	42,3	40,3	35,6	38,3	38,6	35,4	34,2	33,0	33,2	-4,7	35,7	35,5	37,8	39,1	39,2	38,7	38,1	38,5	38,6	34,3	33,4	34,0	**-1,7**
Fornecedores/Trade creditors	12,6	12,6	12,7	12,2	11,8	11,3	16,9	16,9	10,8	10,3	10,3	9,7	-2,9	11	11,5	11,3	10,4	10,0	10,5	10,9	11,4	11,9	12,3	12,1	10,6	**-0,4**
Outros/Other	22,7	20,3	21	20,3	20,9	21,1	20,4	20,6	20,6	20,1	19,4	19,4	-3,3	20,5	16,6	15,1	15,6	17,4	18,7	18,2	17,8	17,3	18,5	19,1	20,6	**0,1**

Source Table 11: Gabinete de Estratégia e Estudos (GEE), April 2020. Dashboard on Credit, Indebtedness, and Investment of Firms. Repùblica Portuguesa, Ministério da Economia e da Transição Digital. p.3.

[91] Gabinete de Estratégia e Estudos (GEE), April 2020. Dashboard on Credit, Indebtedness, and Investment of Firms. Repùblica Portuguesa, Ministério da Economia e da Transição Digital.

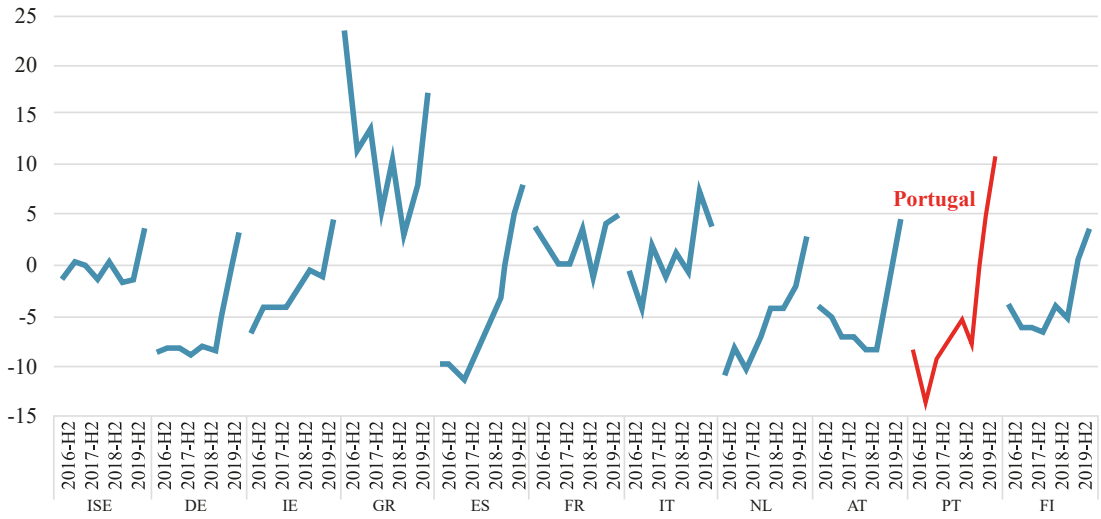
[92] Gabinete de Estratégia e Estudos (GEE), April 2020. Dashboard on Credit, Indebtedness, and Investment of Firms. Repùblica Portuguesa, Ministério da Economia e da Transição Digital. p.3.

The Portuguese economy is characterized by small and medium enterprises, that operate in the Portuguese economy, not without a certain degree of difficulty. Following an OECD analysis, in 2017 SEMs employed 72.4% of Portuguese workers, counting for the 99.7% of the total number of firms in Portugal, and generating the 58.1% of the non-financial business turnover in the country[93]. The consequent importance in the maintenance of these companies so can be seen as a priority for Portugal.

This is the reason why, many government plans were created to support the growth of small and medium enterprise, as the "SME Invest/growth plan" and the "Capitalizar[94]" plan, helped also by the use of the European Investment Fund in 2018.

In the present situation, with the Covid-19 pandemic, the importance, and the stability of this kind of companies represents a very import area of action. The Portuguese government realising its statistics, revealed how the external financial gap of SMEs is still positive in all the Euro area, and this is particularly true for Portugal. Figure 38 gives a graphical representation of the change in the external financial gap perceived by SMEs in some EU countries during the Covid-19 pandemic. SMEs in fact, in comparison to big companies, face the problem of a huge gap between the need of funding and the availability of external financing sources. This element is quite warring for the Portuguese economy, that, as all world economies, will face a big problem in the recovering after the pandemic.

Figure 38: Change in the external financing gap perceived by SMEs.



Source 38: Gabinete de Estratégia e Estudos (GEE), April 2020. Dashboard on Credit, Indebtedness, and Investment of Firms. Repùblica Portuguesa, Ministério da Economia e da Transição Digital. p.9.

This fact can suggest a reflection about the upcoming years after the Covid-19 pandemic.

Today banks are constraints by a lot of regulations and still are providing financial support to many companies across Europe. If today many governments are in some way subsidising the access to a bank financing, and the maintenance of a stable labour market, what will happen when these subsidiaries end?

A scenario in the future can be the increase of non-performing loans on banks, that as consequence will be no

[93] OECD, 2020. Portugal in Financing SMEs and Entrepreneurs 2020: An OECD Scoreboard. OECD Publishing, Paris.

[94] Repùblica Portuguesa, 15 December 2018. New contract of 100 billion of euros with FEI for companies 'capitalization. Press release

more able to provide the necessary funds for companies to restore from the pandemic crises. At this point the importance in the development of a strong and efficient capital market appears even more important both at national level that at European level.

Chapter 4

Empirical analysis

In this chapter an empirical analysis on the effects of the merger between Bolsa de Valores de Lisboa e Porto and Euronext on the Portuguese market is conducted, with a particular attention on the heterogeneity of the consequences across different listed Portuguese companies. The final goal, presented in this section, is the examination of the stock liquidity of some selected Portuguese companies, looking if the merger had significantly improved this data. The analysis focuses on the various characteristics of these companies, to identify some elements or behaviours of firms, making the creation of a harmonized and international exchange more profitable for them. This analysis is based on Euronext as prototype of the Capital Markets Union, to make inference about the potential future scenarios in the creation of a harmonized equity market across Europe. The chapter tries to understand which type of companies benefit more from the creation of an harmonize exchange across borders, and examine if, on the contrary, some companies pay higher costs entering in a system of international exchanges.

A first analysis is conducted on some characteristics and dynamics of Euronext and the related domestic markets, trying to find if some correlations were created with the foundation of Euronext Group. A comparison of some important indicators is delivered in a scenario of pre-merger versus post-merger. The basic idea of this analysis is to understand if some markets, at a first look, received some benefits and consolidated some relationships in the interaction with the other members of Euronext Group.

Secondly, the chapter will explore, through an econometric analysis, the impact of the creation of Euronext-Lisbon. The analysis will take in consideration some Portuguese listed companies, looking at changes of their stock liquidity after the merger, and investigating if some firms gained a significant advantage due to their individual characteristics. A similar study, investigating the impact of the creation of Euronext and its consequences on different firms, was already performed by Ulf Nielson in 2008[95]. This study looked at Euronext using a different time frame, and the interaction between all the domestic markets of Euronext, not focusing, as in this case, on Euronext-Lisbon. The results achieved by Ulf Nielsson show that in general big firms, and firms with a high level of international exposure benefit more from a harmonized and international exchange system as Euronext[96]. The econometric investigation in this chapter distinguishes for the time frame adopted, and the focus on a single domestic market in Euronext. Moreover, the econometric analysis adopts first the methodology used by Ulf Nielsson, but subsequently proposes also an innovative and different econometric methodology, in particular, on the creation of variables, trying to implement the method proposed by Nielsson.

The empirical investigation finally delivers some future suggestion of research, suggesting a method of analysis that can be replicated and adapted in the future to test the heterogeneity of firm response to an event.

[95] Nielsson, U., 2009. Stock exchange merger and liquidity: The case of Euronext. Journal of Financial Markets, 12(2), pp. 229-267.
[96] Nielsson, U., 2009. Stock exchange merger and liquidity: The case of Euronext. Journal of Financial Markets, 12(2), pp. 229-267.

Special suggestions on the analysis of Euronext-Dublin, Euronext-Oslo, and “Euronext-Milan” are finally proposed.

The main questions that this chapter will try answer are: Did the creation of Euronext Lisbon improve the liquidity of Portuguese listed companies? Did small firms, big firms, firms known internationally, and profitable ones have an extra benefit or loss from the merger event in terms of liquidity?

The consequences of the creation of the Capital Markets Union need to be explored and evaluated and this empirical analysis tries to analyse some risks and benefits in the creation of a harmonized equity market for the European Union, taking Euronext as prototype of the CMU.

The Euronext Group could represent a way to directly access and evaluate the consequences of a federal European system of exchanges and incorporate this vision of harmonized equity market in the ambitious project of the Capital Markets Union.

A correct analysis of the potential future scenario can in this way help the construction of an even more resilient and efficient capital market, able to support the recovering of the EU after the Covid-19 pandemic and create an alternative to the banking system.

4.1 Descriptive statistics on Euronext and domestic markets

An analysis of the movements and fluctuations of some equity markets' dynamics of the different participants of Euronext is delivered in this section. This first analysis can be useful for a first understanding of the general consequences and mechanisms related to the creation of Euronext.

The World Bank and the ECB provide a series of data, easily accessible through their website, about the market environment of different countries across the world.

First at all, the evolution in the number of domestic listed companies[97] in the different domestic markets in Euronext has been analysed. Due to the scarcity of old data on the Irish and Norwegian stock exchange, only the data relative to the three founders[98] of Euronext and Euronext-Lisbon will be presented.

Data are taken from the World Bank database on annual base for the period 1990-2018.

Figure 39 shows the evolution of the number of listed domestic companies, underlying with a red bar the creation of Euronext and Euronext-Lisbon. A similar path across exchanges, characterized by a decrease in the number of listed domestic companies, is shown form the early 2000. Portugal characterises in the Group as the country with the lower number of listed companies. The decrease in the number of domestic companies after the creation of Euronext can suggest a negative effect of the creation of the Group on the singular domestic markets. Nevertheless, is important to remember that this market's behaviour is characterizing all the world, not only Euronext, and it cannot be directly linked with the entrance of these exchanges in the Group.

Although the Portuguese market characterized for the lower number of companies, it must be pointed out that Euronext- Paris is the market that experienced the higher delisting rate from 2000 to 2018.

Other underlying factors can justify this market behaviour as: the increase in the burden of regulations in the equity market, the financial uncertainty and instability of the market, and the preferred reliance on the banking sector as primary source of funding for companies.

A crucial factor to consider in the evaluation of the number of listed companies in a market is the degree of economic wealth and growth of a country. This can be visible through the analysis of the GDP growth rate. In fact, the high decrease in the GDP growth rate can be the consequence of a negative economic environment, bringing companies to fail or delist. Looking at the Portuguese market from 2000 to 2019, the country was subject to many oscillations, and for many years the Portuguese GDP growth rate was not only decreasing but also negative[99]. Moreover, the high difference in the number of domestic listed companies across countries, can be explained also by the differences across the national GDP growth rates, since companies tend to move where a prospective of future economic growth is present. In this case an analysis of the annual GDP growth rate of the involved markets shows that all the GDP growth rate of these countries are quite similar, even if

[97] Listed domestic companies, including foreign companies which are exclusively listed, are those which have shares listed on an exchange at the end of the year. Investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies, such as holding companies and investment companies, regardless of their legal status, are excluded. A company with several classes of shares is counted once. Only companies admitted to listing on the exchange are included.

[98] France, Belgium and Netherlands.

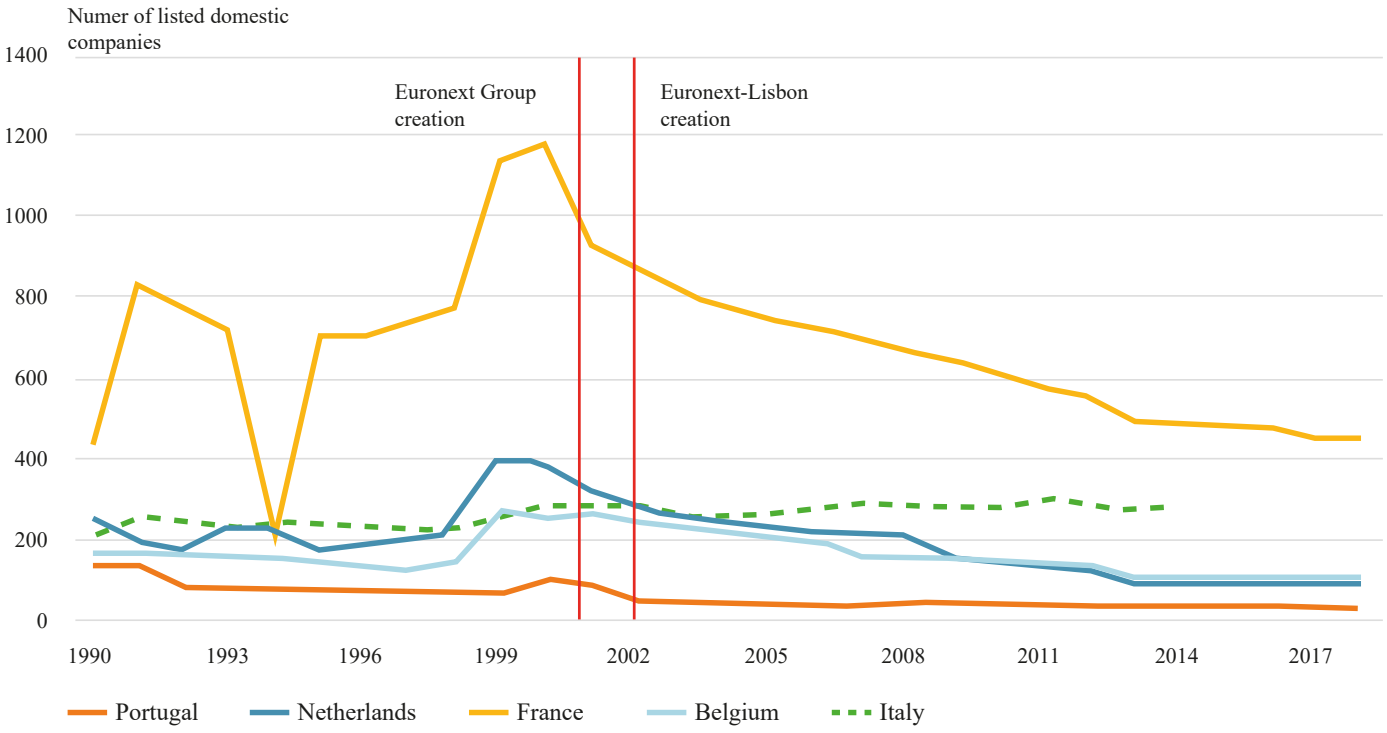
[99] ECB data.

the Portuguese one is the one that experience the higher fluctuation[100]. The analysis of the National GDP of the countries involved in the Euronext Group is delivered in Annex I.

In figure 39 the Italian market is included as well[101]. This choice was done to understand if States with an economy similar to the Portuguese one, follow a similar path. Although data for the Italian market after 2014 are not provided by the World Bank, from the nineties to 2014, Italy was on the contrary able to increase its number of domestic listed companies.

A generalisation between all southern EU countries as consequence cannot be taken in consideration as regard the number of publicly traded companies.

Figure 39: Evolution in the number of listed domestic companies, from 1990 to 2019.



Source 39: World Bank data

Looking at the today's situation of listed companies in Euronext-Lisbon, at the end of 2020 (31 December 2020), 54 companies resulted to be listed in the exchange, comprehending both companies traded on Euronext section for highly capitalized firms and Euronext Access section[102].

In Annex II, a timeline showing the present listed companies on Euronext Lisbon is available.

The singular characteristics of firms could be an important source of information for the evaluation of the market structure. A common measure for understanding the size of a market is the market capitalization, measured as the price of the shares for the number of outstanding securities. A highly capitalized market can be defined as "big" and could be seen as the result of an efficient functioning of the market. It is quite common that highly capitalised markets can attract higher number of investors.

[100] The analysis was based on data from the World Bank. The analysis was on the annual percentage growth rate of GDP at market prices based on constant local currency for the period 1990-2019

[101] As regard the Italian market, the historical series stop in 2014, since the data are not provided by the World Bank.

[102] Euronext. Official website. https://www.euronext.com/en

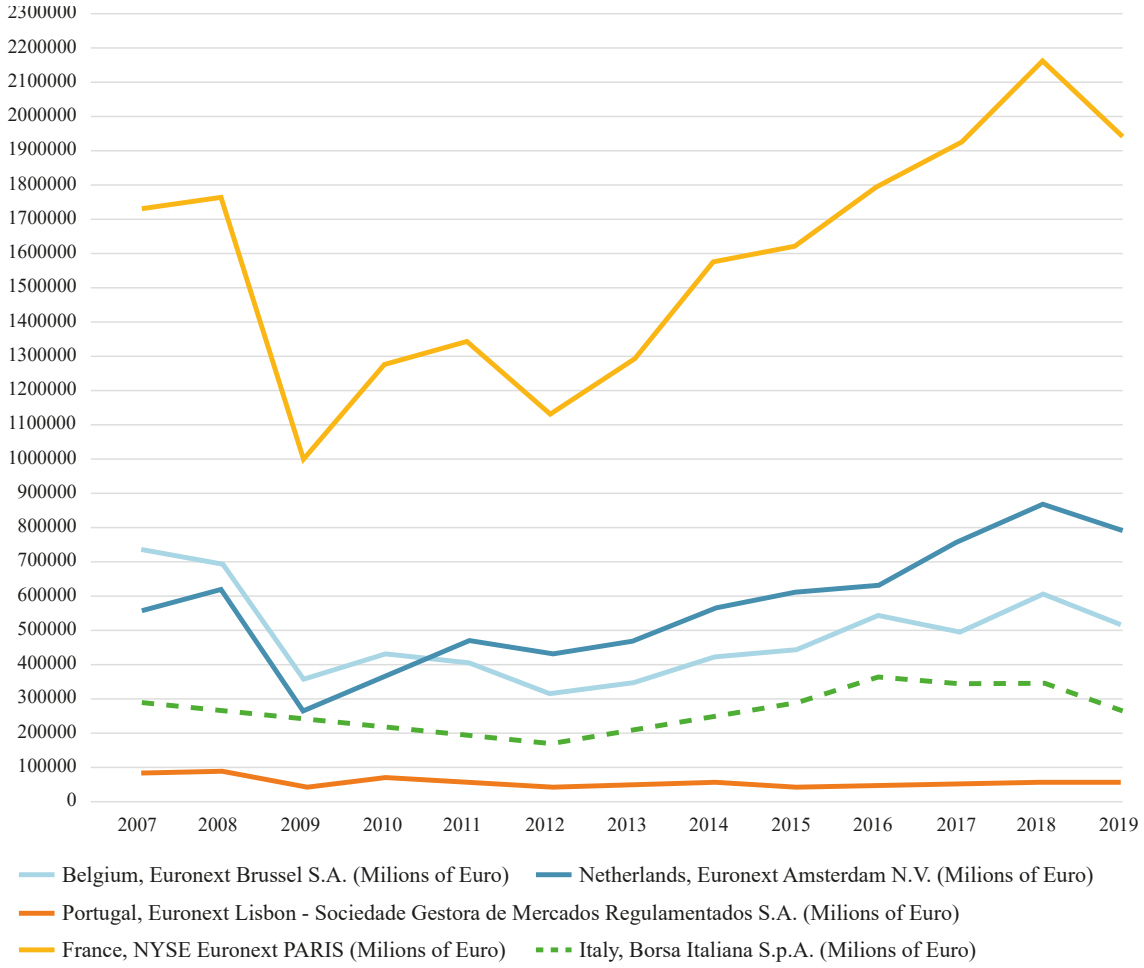
The ECB supplies data regarding the equity market capitalisation of different exchanges, looking at the equity market capitalisation of its companies[103]. Data for this analysis are provided by the ECB, on an annual base, scaled by millions of Euros, from the 31st of December 2006 to the 31st of December 2018.

Figure 40 displays the historical series of different countries as regard the equity market capitalization of listed companies.

Also in this case, Portugal classifies as the lower countries among the Group as regard market capitalization. Belgium and Netherlands follow a general similar path across the years, dominated by the higher market capitalization of France.

Italy in this case shares higher affinity with the Belgian and France market, alienating on the general market behaviours as regard the equity market capitalization.

Figure 40: Annual equity market capitalisation of listed companies from 31 December 2006 to 31 December 2018, in Millions of Euros.



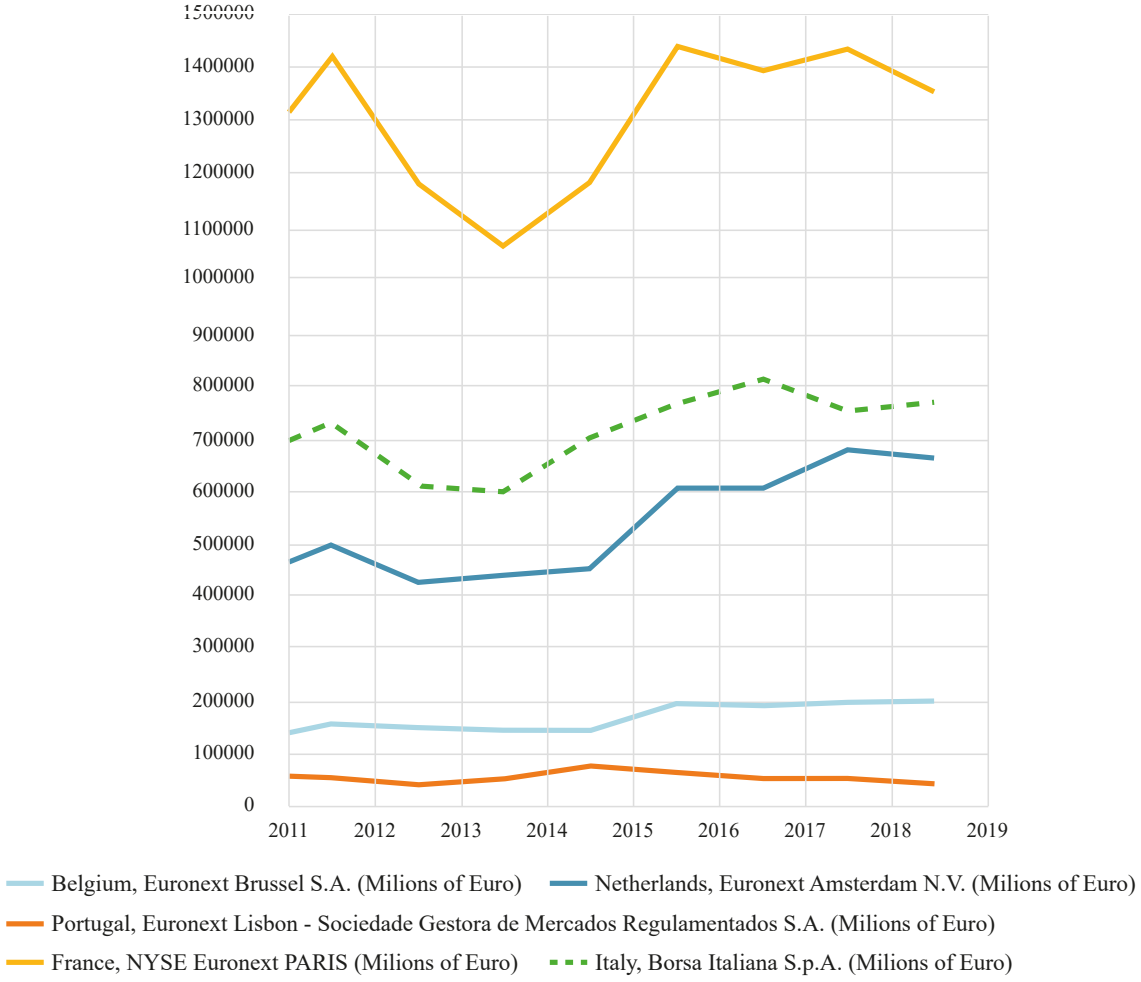
Source 40: ECB data

This measure can be used as proxy of the equity market size of the different countries and it gives an insight on the market development level, distinguishing States between: countries based on a bank source of financing and countries that approach capital markets more often. Nevertheless, this measure is not able to capture the dimension of the single companies, so is not possible to say, using this measure, if traded firms can be considered big companies or SMEs.

[103] Market capitalisation of listed companies as domestic equities and exclusive foreign listings.

A high market capitalization does not guarantee a high number of companies, neither the presence of both big and small firms. A high market capitalization can be also guaranteed by few and very big companies. This point will be particularly important in the further discussion about data mining at the end of the chapter.
Figure 41 provides the annual number of executed trades in the equity exchanges in Euronext.
Data are provided by the ECB on annual base from 2011 to 2018. This type of data supplies important insights about the liquidity of the domestic markets.

Figure 41: Number of equity securities executed trades, annual measure, from 2011 to 2018.



Source 41: ECB data

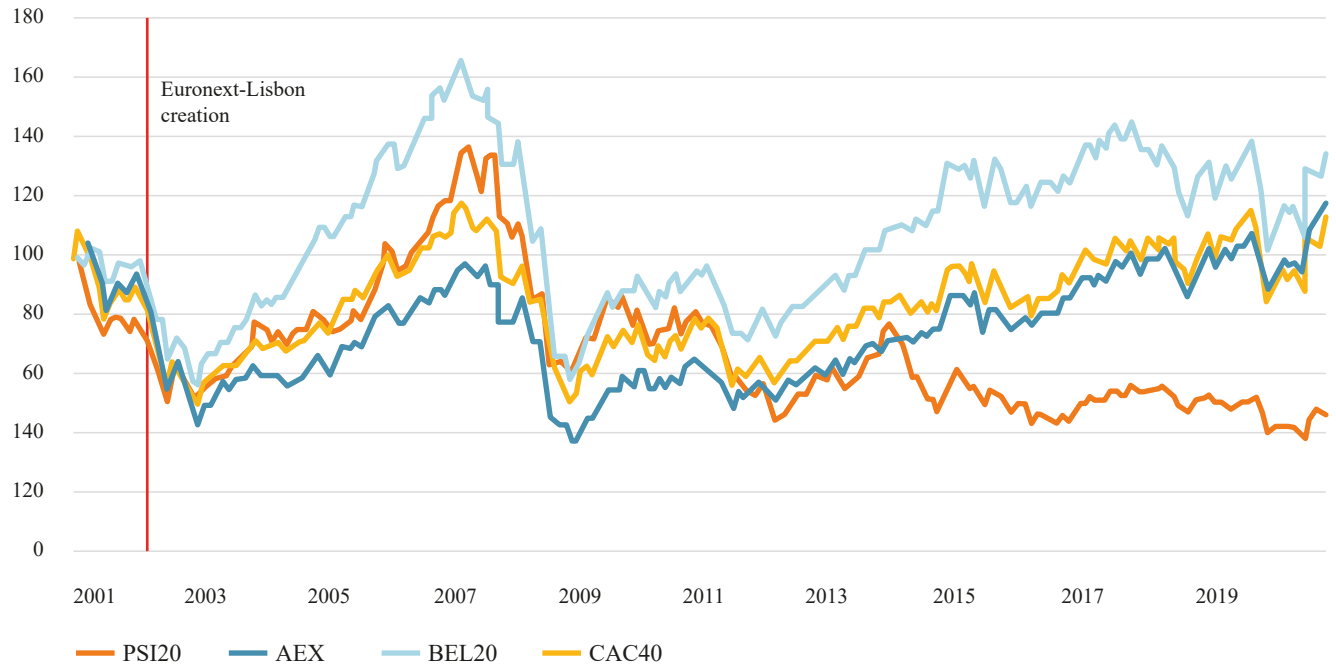
The equity market with lower liquidity appears to be the Portuguese one, followed by Belgium. On the contrary, France and Netherlands follow a more coordinated path. Looking at the comparison of Portugal with Italy, a high difference is present, showing a not comparable situation as regard the management of the liquidity of these two different stock markets.
A first important empirical test that is performed to understand the consequences of the merger is a correlation analysis between the domestic markets' indexes of Euronext Group.
The first analysis is based on the graphical representation of the market indexes, to understand if at a first look a coordinating behaviour is present.
Figure 42 shows a graphic representation of the equity market indexes of the group:

- AEX index for Netherlands,

- CAC40 for France,
- BEL20 for Belgium,
- PSI20 for Portugal.

Data are the monthly closing price of the indexes, from the 8th of March 2000 to the 8th of March 2021, taken from the Refinitiv database. The red line in the graph indicates the date of creation of Euronext-Lisbon. To an accessible interpretation of the results in the graph data are scaled for the first data of the historical series.

Figure 42: Monthly closing price of domestic equity market indexes, scaled for the first observation of the series, from the 8th of March 2001 to the 8th of March 2021.



Source 42: ECB data

These indexes can be seen as a good proxy for the movement and fluctuations of the national equity markets of these countries. All indexes move in the same direction, except for Portugal, that, after the 2013, seems to be a stand-alone country. This can be strictly linked with the Portuguese crises that in that years highly affected and perturbate the national economy.

To perform a correct analysis a proper quantitative correlation analysis must be performed. A simple correlation analysis between the indexes can reveal if, after the Lisbon merger, the indexes followed a more similar path and start to be closely linked. As for the graph, data are taken from Refinitiv, monthly reported, from March 2000 to March 2021. Table 12 shows the correlation results based on a sample of 241 monthly observations.

Table 12: Correlation analysis of equity market indexes, from March 2000 to March 2021 on 241 monthly based observations.

	PSI 20	AEX	BEL20	CAC40
PSI 20	1.0000			
AEX	0.0277	1.0000		
BEL 20	0.2855	0.8204	1.0000	
CAC40	0.2462	0.9384	0.9346	1.0000

Source Table 12: Refinitiv data

As previously suggested by the graphical analysis, Portugal reveals to share an extremely low correlation with the other markets in the Group, as Table 12 proofs. The correlation seems high for Belgium France and Netherlands and low for Portugal. In particular, the Belgian and Dutch market share a correlation of 0.8204, France-Netherlands of 0.938, and France-Belgium of 0.9346. On the contrary, Portugal seems to be an isolated country as regard the correlation between the other members of the group. The similarities and the correlation between some of these markets are based not only on their structure and market-oriented vision of companies, but also on a cultural and historical common background. It is in fact important to remember the close historical relationship between France and Belgium as the one between Belgium and Netherlands.

Portugal seems to share not a lot of similarities with the other members of Euronext as regard a first analysis of the situation, showing how a harmonisation of the structure of the exchange seems to not directly affect the equity market indexes.

A second correlation analysis is shown in Table 13, where a different time frame was selected. From the immediate afterwards of the creation of Euronext-Lisbon (31st January 2002) to 31st January 2011, the correlation analysis is performed again to test if the prior results were subject to the weight of the most recent data and affected by the consequences of the Portuguese crises.

Table 13: Correlation analysis of equity market indexes, from 31st January 2002 to 31st December 2011, using monthly based observations.

	PSI 20	AEX	BEL20	CAC40
PSI 20	1			
AEX	0.830498	1		
BEL 20	0.941219	0.897245	1	
CAC40	0.942927	0.937263	0.980141	1

Source Table 13: Refinitiv data

Taking the correlation analysis again in a different time interval, the correlation between all the domestic equity markets is extremely high for all the couples.

This is particularly interesting to analyse, since the creation of the Euronext Group is one of the most clear attempts in the harmonisation of securities markets, and as regard markets indexes it works quite well for the first period. Nevertheless, seems that increasing the period of the analysis a sort of dispersion of this harmonisation appears. Looking at these two correlation analyses is possible to suggest that: the creation of Euronext harmonised the equity market indexes of all the involved domestic markets, but due to some external macroeconomic causes, the achieved harmonisation decreased with time. This is particularly true if we consider the fact that Portugal experienced in 2013-2014 an economic crise. Moreover, to underline is the fact that the second correlation analysis starts from the creation of Euronext-Lisbon, since, in this thesis, the goal is to concentrate the attention on the announcement of the merger between Euronext and the Portuguese stock exchange.

4.2 Empirical Analysis

The aim of this chapter is to investigate the consequences of the creation of Euronext Lisbon, resulted by the merger of the Bolsa de Valores de Lisboa e Porto and Euronext. If the prior examination was based on some descriptive statistics and correlation analysis, now an econometric approach is adopted. The econometric analysis has been performed by evaluating the impact of the creation of Euronext-Lisbon on the liquidity of different companies in the Portuguese equity market, by taking in consideration the different firms' characteristics. Ulf Nielson on its paper "Stock exchange merger and liquidity: the case of Euronext" of 2008104, analysed the effect of the creation of Euronext looking at the individual characteristics of the firms, finding a positive relationship between the ex-post liquidity of companies and their size and foreign exposure. The empirical analysis starts from work previously performed by Nielson in 2008, but with some differences: the use of a different time frame of data and the method for creation of variables, due to the presence of some important issues related with the different availability of data and multicollinearity issues.

The creation of Euronext-Lisbon in 2002 will be defined as merger event or event study. Important is to underline that the econometric analysis is based on the evaluation of the firm's liquidity in response to the creation of Euronext-Lisbon, due to the key role that liquidity assume in the markets.

Companies' liquidity is studied and analysed as the number of trades of a stock; defined as liquidity turnover. The main reason for the attention given to liquidity is that the stock liquidity of a company directly affects its cost of capital, and as consequence the market efficiency. If the goal of the European Union is to create a valid and efficient alternative to the banking-system, where firms can easily access to capital; liquidity then must be taken in consideration. The increase in the liquidity of a market, in fact, is a great mechanism for attracting investors and companies, as has being studied by all the financial literature in the last decades.

An example can be the work of Amihud and Mendelson105 of the 1986 where the role played by the liquidity in the pricing of capital assets was investigated. The authors looked at the relationship between the bid-ask spreads and securities' returns, showing that the spread is an important factor in the creation of securities returns and demonstrating how the more illiquid stocks in a market can rise a 50% extra value if their liquidity can reach the levels of the most liquid stocks. This study as consequence proved the importance of liquidity for companies to increase their value, attract more investors, and so find an alternative source of financing.

Moreover, another aspect that concerns liquidity is its relationship with the increase of competition between companies and between markets.

Looking first at the competition between companies, it is quite logic to understand how a more liquid stock can attract investors instead of an illiquid one. Liquid stocks in fact, represent a really inserting occasion for investors, that can easily exchange the security and include it in their portfolio. This of course this will generate a higher competition between companies, pushed to increase their performance, to increase liquidity and so financing. Another aspect to evaluate is the competition among exchanges. If the attraction of investors works

[104] Nielsson, U., 2009. Stock exchange merger and liquidity: The case of Euronext. Journal of Financial Markets, 12(2), pp. 229-267.

[105] Amihud, Y. and Mendelson, H., 1986. Liquidity and stock returns. Financial Analysts Journal, 42(3), pp. 43-48.

at “micro-level” in an exchange; it can be also applied to a macro prospective, looking at the competition across different world exchanges. A liquid exchange, composed by liquid companies, in terms of stock liquidity, is able to attract investors across the world and so increase the overall richness of the State linked with the market.

If the goal in the creation of the Capital Markets Union is the competitiveness of the EU capital market with the world, and the increase of the EU internal richness, development; liquidity for sure have to be set as fundamental pillar. A quite simplistic but effective way to define this concept is: “money follow money”, in the sense that new investors will be attracted to a market that already has high liquid levels, giving them higher opportunity to invest.

Many studies were performed in the analysis of the liquidity of companies and mergers among exchanges. Padilla and Pagano106 in 2005 investigated the consequences of the harmonization of markets in the Euronext Group, looking at the integration of the equity markets of France, Netherlands, Belgium and Portugal between September 2000 and November 2003. The authors analyzed the cost savings produced by the integration, and the effects of the merger on liquidity, finding a decrease in costs and an increase in the liquidity of companies. Another study that needs to be mentioned is the one of Arnold, Hersch, Mulherin and Netter107 on the US regional stock mergers and liquidity analysis, looking at the change in the competition levels of order flow at the change of the structure of competition between them from 1945 to 1961. They looked at a series of stock exchange mergers, and the consequences on the bid-ask spreads, finding that mergers of exchanges attract market shares and deliver narrower bid-ask spreads.

Although the merger and acquisition of exchanges is not a new trend in the world scenario, the new technologies, the new approach to investments and the new set of regulation, present both at EU level and world one, facilitate and increase the complexity of the consequences in the harmonisation and acquisition process of exchanges. Moreover, the increase in the availability of data, analytical software and machine learning techniques is creating the conditions for a further and more precise investigation.

If before the 80’s the managing of big databases and complex calculations required a quite consistent amount of time and scientific preparation, the technological improvement experienced in the last twenty years is creating the opportunity for further investigations.

There are many elements and aspects that must be taken in consideration in analysing the merger of two stock exchanges, both at regulatory level and economic one; affecting distinctly the different participants to the market as: companies, investors, regulators, financial intermediaries.

The different risks and consequences cannot be inferred only theoretically but need an empirical support, to correctly evaluate the results of the merger on the single economy’s characteristics; especially if the goal of the evaluation is a generalization of the results at EU level for the evaluation of the Capital Markets Union.

[106] Pagano, M. and Padilla, A., 2005. Gains from stock exchange integration: the Euronext evidence. Centre for Economic Policy Research Working Paper.

[107] Arnold, T., Hersch, P., Mulherin, J.H. and Netter, J., 1999. Merging markets. The Journal of finance, 54(3), pp.1083-1107.

The questions that this thesis is posing are: Have all companies gained from the merger event? Have they gained equally, or there are characteristics making for some firms the merger, and an international exchange more profitable? The size of the company, its foreign reputation and its profitability plays a role in the evaluation of the companies 'effects of the merger? Can the significance of these characteristics create some doubts about the efficacy of an equal EU harmonisation process of equity markets across all the Member States, characterized by many differences?
This empirical analysis will try find an answer to all these questions.

4.2.1 Some preliminary hypothesis

First at all, before conducting an empirical analysis, can be useful to formulate some hypothesis about the consequences of the merger of the Portuguese exchange to Euronext on the different companies.
A positive relationship between the liquidity of the stocks and the merger event can have many causes.
The creation of Euronext-Lisbon can lead to the increase of the size of the general exchange, broadening the market of investors processing the different information about the companies. Investors already working in the other markets, in Euronext before the merger of Lisbon; can have an easier access to the information regarding the Portuguese companies, and as consequence be aware of new opportunities of investment in the Portuguese market. This of course can be translated in the increase in the transaction of the Portuguese stocks and so their liquidity.
Another explanation for a positive relation between the liquidity of companies and the merger event can be the deepen characteristics of the ex-post market. The increase in the number of investors from Euronext Group attached markets, will make prior big-Portuguese-investors to be less likely to drive price changes. Moreover, the merger will lead to a decrease in the cost of transaction, in particular information costs and indirect transaction costs.
Specifically, the merger event can help investors, due to the reduction of cost of information about Portuguese firms, time costs and effort for understanding the regulatory structure of the exchange, cost driven by different clearing systems or trading platform; and as consequence incentivising the increase of liquidity of the market.
On the contrary, a negative relationship between the merger event and the Portuguese stock liquidity can be explained by different economic factors. In fact, if Portuguese companies do not perceive the merger as a profitable change, they can change their source of founding shifting to a bank-loan system. Looking at the data of delisting companies in Portugal, this hypothesis does not have to be ignored. In fact, if companies delist form an exchange, not for natural termination of the business activity, they will for sure move their financing interests to a bank.
Another element is, in addition, the movement of Portuguese investors to foreign market. If is true that investors operating in the other markets can find more profitable investment and lower cost connected to them in Lisbon, is also true that Portuguese investors can find more profitable opportunities in the other markets, moving their investment and, as consequence, reduce the liquidity of the Portuguese equity market.

Liquidity will be measured as stock liquidity turnover of the company in this empirical analysis, even if other measures for stock liquidity can be considered for future studies.

The empirical investigation, furthermore, analyses the heterogeneity in the effect of the merger event of the liquidity of the different Portuguese firms. The research in fact examines if the negative or positive effect on the liquidity created by the merger event will be weaken or strengthen by the size of the firm, its foreign reputation and its productivity.

The investigation tests if, given the positive or negative effect on liquidity of the merger event:

- Big firms are able to mitigate or amplify the increase/reduction of liquidity driven by the merger event,
- Small firms are able to mitigate or amplify the increase/reduction of liquidity driven by the merger event,
- Firms with a foreign exposure, in terms of known abroad, are able to mitigate or amplify the increase/reduction of liquidity driven by the merger event,
- Firms with a high productivity are able to mitigate or amplify the increase/reduction of liquidity driven by the merger event.

Some interesting hypotheses can be performed on the relation between liquidity of big firms, with foreign exposure, high productivity, and the merger event.

Is possible to hypnotize that big companies will increase the effect of the merger event on liquidity due to their size dimension. Big companies are usually more known, used for empirical studies, and taken in consideration by analysts in the creation of clients' investment portfolios. As consequence, an increase in the amount of information owned by external investors, operating in other Euronext market, and the increased familiarity with the group trading platform, internal system and managing; can lead big firms to strengthen the impact of the merger on their liquidity.

A counter argument, nevertheless, have to be taken in consideration. Big firms usually are already detected and followed in their financial performance by analysts, so will not significantly be affected by the increase of harmonisation across the Euronext Group, but on the contrary; small firms can strengthen the effect of the merger event.

Small firms can appear to be a new element to take in consideration for investors, and so are able to attract investors that otherwise will ignore the opportunities linked with these small size firms.

Small companies in fact, can result to gain more from a merger event, due to their prior low attractiveness in a contest of prior lack of information due to national exchanges structure.

As regard foreign exposure is possible to suggest that it will increase the effect of the merger, both in positive terms and negative ones. This can be true since this kind of companies are already known internationally due to some specific characteristics, so have more possibility to attract foreign investments.

In general investors are affected by the common home bias problem, so tend to invest only in local and known companies. Nevertheless, companies knowing internationally face less asymmetry in information and so can still attract foreign investments. Firms with high visibility at international level, due to advertisement, operation in foreign countries and partnership with foreign companies can result in be highly affected by the

merger event. Investors operating in the other exchanges of Euronext, that already have familiarities with Portuguese companies, due to some international relation, can be attracted by the potential opportunity of an investment in them, considering the homogenised transaction platform, clearing system and exchange group. The merger as consequence can lead to an extra benefit in terms of liquidity for Portuguese companies with an international exposure.

If this is true, it can be true also the contrary. These types of companies are already known internationally, and investors already had the possibility to invest in them. Therefore, the merger will not result in an increase in their liquidity, as for firms known only inside the Portuguese border, that can have a marginal extra benefit in terms of liquidity from the merger. As consequence firms subject to international exposure will not have a sizable increase in their liquidity due to the merger event.

Taking in consideration the profitability of a firm, is interesting to understand if profitable firms, able to generate positive and consistent earnings are highly affected by a merger event between exchanges.

In the analysis it is considered in fact also the EBITDA of the different companies, looking if more profitable firms are highly impacted by the merger, or the contrary is true. The distinction will be between high performance firm or firms performing poorly. In case of firms with low performance, if it results true that they received an extra benefit from the merger, this means that low performance firms will not be excluded by the market and follow an insolvency procedure.

This can generate as consequence a problem in terms of efficiency of the overall market, since this kind of "zombie firms" will continue to ask for resources that can in reality be used in a more efficient way.

4.3 Data and methodology

4.3.1 The model

The empirical analysis is conducted using as main database Refinitiv[108] and getting some information from the International Monetary Fund[109] (IMF) and Euronext datasets[110]. The empirical analysis required data about equity prices, market cap and financial statements taken from Refinitiv; data on the GDP per capita of Portugal provided by the IMF, and information about the IPO date and life of the involved companies delivered by Euronext. All the information form this last two databases are publicly available in their related official website. The statistical software used for the empirical analysis is STATA.

For the analysis 22 listed companies in Euronext Lisbon are taken in consideration, and the complete list of the companies and their characteristics are shown in Annex III. Since many companies disappeared, delisted, or exit from the market, only 22 listed companies in Euronext Lisbon are taken in consideration for the analysis, since they result to be the only able to cover the studied sample period (from December 2001 to December 2019).

As it will be explained later, different kind of variables will be examined, both looking at market's variable and variables derived from financial statements' information. This last type of information is taken on annual base, and as consequence all the used data for the analysis are taking this annual characteristic to harmonise the time granularity of variables.

The sample of data, as priorly mention, cover a period from December 2001 to December 2019. Due to the elimination of old data from the used database, provided by Refinitiv, data older than 20 years are no longer available in the database.

The event study is in September 2002, but since the sample is annual, with data taken on the 31st of December, we will consider as event study exactly this last date. As consequence, the total size of the sample includes 22 companies, covering 19 years for a total dimension of the panel data sample of 418 observations.

Due to the scarcity of old data, only one year before the considered event study, the sample results in being unbalanced, giving higher weight to recent data, and not reflecting properly the real situation and results.

From the sample two analysis on different periods were performed, in order to cover some issues related to stability of results. All tests and analysis were performed first on the entire sample of 19 years (31st December 2001 - 31st December 2019, 418xK observations) and after to a smaller sample of 9 years (Sub-sample: 31st December 2001 - 31st December 2009, 198xK observations).

As proxy of liquidity the stock liquidity turnover was used. It represents the dependent variable, changing both across time and across individuals ($T_{i,t}$). In this case the variable is calculated as the number of shares traded on the 31st of December dividend for volume traded on 31st of December. The use of the turnover as dependent variable captures the number of trading that are present in the market for a given company.

[108] Data on liquidity turnover, market cap, external revenues, and EBITDA
[109] Data on GDP per capita of Portugal
[110] Data on IPOs

The merger event is captured by a dummy variable ($D_{i,t}^{1}$) taking value zero before the event study (September 2002) and one after the event. As mentioned before, due to lack of historical data, the dummy variable will take value zero only in one observation, corresponding to the 31st of December 2001.

In order to find a proxy for the size of the companies, the market capitalization is taken in consideration. In particular, the market cap[111] is identified as the number of shares outstanding on the 31st multiplied for the price of shares on the same day. Unfortunately, is not possible to obtain an annualized market cap, as an annualized liquidity turnover, due to some big lack of historical data relative to some companies' trading days.

Concerning the captures of the foreign knowledge[112] and exposure of the company, external revenues are used. Specifically, they are defined as revenues acquired by external consumers, not including intersegment revenues. These data are provided by the different companies in their annual financial statement, and they are taken only on annual basis. Also in this case, some data are missing, in particular the 21% of observation over a sample of 418 are not present. In order to not create unbalanced panel data, the assumption of not external revenues in case of missing data is taken. This means that: in case of missing data a zero is present instead of a missing value.

The productivity of the company is considered as the Earnings before interest, taxes, and amortization (EBITDA), taken still from the annual financial statement of the different companies.

For the construction of the independent variables, multiple ways were explored. Two main approaches were followed in order to capture the size of companies, their foreign exposure and their productivity.

One method follows the same system used by Ulf Nielsson in his paper (based only on individual varying variables, but time-fixed), and another one is based on time-individual-varying variables (explained in section 4.3.3).

4.3.2 Regressions

Multiple regressions were taken in consideration, in order to understand the importance of each variable, and if cross-effects[113] were present. In all cases the method of estimation used if a fix-effects model or random-effects model. The Hausman test was used as discrimen between the two model of estimation.

A general regression can be represented as following:

$$T_{i,t} = \alpha_i + \beta_1 D_{i,t}^{1} + \beta_2 SIZE * D_{i,t}^{1} + \beta_3 FOREIGN\_EXPOSURE * D_{i,t}^{1} + \beta_4 PRODUCTIVITY * D_{i,t}^{1} + \beta_5 SIZE * FOREIGN\_EXPOSURE * PRODUCTIVITY * D_{i,t}^{1} + \gamma * W_t + \epsilon_{i,t}$$

As mentioned previously, the dependent variable ($T_{i,t}$) is the liquidity turnover and we measure the impact of the merger on the turnover using a dummy variable ($D_{i,t}^{1}$) taking zero before the event and one after. This variable is always a time-individual-varying variable.

The coefficient β_1 captures the cumulative effect of the merger event on the liquidity turnover of each company.

[111] Market capitalization

[112] How much the company is known abroad.

[113] Cross- effect indicate the effect generated by the interaction between two or more independent variables and the merger event.

In order to capture the heterogeneity in the response of different firms to the merger we include in the regression the different firms' characteristics that, interacting with the dummy variable, are able to detect the heterogeneity of the firms' responses according to their individual characteristics, then expressed in β_n.
The firms' characteristics are moreover jointly interacted (cross-effects), in order to find if firms with multiple characteristics will acquire an extra benefit in comparison with firms with only one characteristic.
In the regression a control variable is present. This variable (W_t) is able to clean the results of the regression. We insert a macroeconomic indicator (GDP per capita of Portugal) in order to control for the effect of the economic cycles that can impact the liquidity of the companies but have no reference with the event study.
In this case the GDP per capital of Portugal historical series is taken from the IMF website, and still with an annual characteristic.
On the regression multiple tests were performed in order to apply the correct methodology and have the most accurate information on the results.
The regression is estimated using both the fixed-effect model (FE) and the random-effect model (RE), and subsequently, after the Hausman test, the more appropriate model is adopted.
The fixed-effect model assume that some individual characteristics can have an impact on the outcome variable or predictor, and therefore a control is required. The fixed-effect model eliminates the time-invariant individual characteristics to access the net effect of the independent variable on the outcome variable. The fixed-effect model, in addition, assume that each individual time-invariant characteristic is unique, so each entity's error term and constant is not correlated with the ones of the other individuals. To sum up, the fixed-effects model assumes no correlation between the individual error terms and is used to study changes within the same company, removing time-invariant singular characteristics, that do not affect the change[114].
The random-effect model on the contrary is used when there is not the suspicious that differences across companies have an impact on the dependent variable. On the contrary of fixed-effects model this method of estimation allows for the inclusion of time-invariant variables.
The Hausman test set as null hypothesis that the individuals' errors are not correlated with the regressor; this means that accepting the null hypothesis the fixed effect model is preferred. Practically if the Hausman value is lower than 0.05 the fixed-effect model is used for the estimation of the regression.
In case of resulting fixed effect model as the more appropriate estimation system, individual effects are then calculated. Data are moreover tested for heteroskedasticity using the Breusch-Pagan LM test. This test also known as test for cross-sectional dependence set as null hypothesis that the residuals across the entities are not correlated.

4.3.3 Creation of variables

For the creation of the variables multiple ways were explored. First at all a similar construction as the one applied by Ulf Nielsson, based of time-invariant characteristic, is proposed. Since the proposed regression by

[114] Kohler, U. and Kreuter, F., 2005. Data analysis using Stata. Stata press. 2nd edition. p.245.

Nielsson seems to present some characteristic that do not fit completely with the Portuguese market, a different kind of variables were created to adapt the idea of Nielson to the analysed market.

Moreover, 9 regressions were performed to check the different possibilities and combinations of variables, even if in this section only 2 are explained, since these two are the most complete ones.

In Nielsson's paper, to consider the individual characteristics of the firm, some dummy variables individual-varying but not time varying were created.

For the regression, a dummy variable for big firms, a dummy variable for small firms, and a dummy variable for firms having an international exposure was created.

As regard the dummy variable for big firms (D_i^B), it is constructed such that big firms will take value one and all the others zero. A firm is considered big if its market cap before the merger event (September 2020) lies in the top 18.18% companies in the considered sample. This mean that on 22 considered companies, only four companies are considered big.

The dummy variable for small firms (D_i^S) is constructed in a comparable way as the one for big firms, and it takes one if the firm before the merger event lied in the bottom 18.18% of companies in the sample, and zero otherwise. As well as in the earlier case, the variable chance across firms but not across time. Fourteen companies in the sample are not considered big and neither small.

The dummy variable for international exposure D_i^F follow a consistent structure, it takes value one if the firm before the merger event had external revenues and value zero otherwise, changing also in this case across companies but not across time.

In this construction set up the productivity dimension is not taken in consideration.

As result, the final empirical regression will not interact with the value of the market capitalization and external revenues but will be based on dummy variables 'interactions.

The regression in this case will as consequence take a similar form:

$$T_{i,t} = \alpha_i + \beta_1 D_{i,t}^1 + \beta_2 D_i^B * D_{i,t}^1 + \beta_3 D_i^S * D_{i,t}^1 + \beta_4 D_i^F * D_{i,t}^1 + \beta_5 D_i^F * D_i^B * D_i^S * D_{i,t}^1 + \gamma * W_t + \epsilon_{i,t}$$

As later will be exposed, this kind of regression will lead to a certain number of problems related with multicollinearity issues, sample issues and arbitrary choice consequences in the determination of big and small companies.

Another method used in the creation of the variables is shown in this section to capture the size, foreign exposure and productivity dimension.

Instead of creating dummy variables based on market cap, external revenues, and EBITDA, is possible to insert these variables directly in the regression, creating time-individual varying variables.

As consequence the following variables were created:

- $X_{i,t}^{MC}$ a time-individual variable indicating the market capitalization of firm i at time t and capturing the size of the firm,
- $X_{i,t}^{ER}$ a time-individual variable indicating the external revenues of firm i at time t and capturing the international exposure of the firm,

- $X_{i,t}^{EBITDA}$ a time-individual variable indicating the EBITDA of firm i at time t and capturing the productivity of the firm.

This second method of estimation produce a different regression taking the following form:

$$T_{i,t} = \alpha_i + \beta_1 D_{i,t}^1 + \beta_2 X_{i,t}^{MC} * D_{i,t}^1 + \beta_3 X_{i,t}^{ER} * D_{i,t}^1 + \beta_4 X_{i,t}^{EBITDA} * D_{i,t}^1 + \beta_5 X_{i,t}^{MC} * X_{i,t}^{ER} * X_{i,t}^{EBITDA} * D_{i,t}^1 + \gamma * W_t + \epsilon_{i,t}$$

In Annex IV a schematic sum-up of the variables, datasets and assumptions is delivered. As mentioned before, different analysis and trial were performed with data, and also a mix between the dummy variable regression and the second regression (with time-individual varying variable) was taken in consideration.

All results and the different trials are exposed in the next paragraph.

4.4 Empirical Results

Due to the unavailability of old data, the analysis has been performed on all the sample, 19 years, and on a subsample covering only 9 years from 31st December 2001 - 31st December 2009, to access the possible instability of the results linked with the high number of recent data in comparison to the pre-merger data.
Both the results from the two periods are presented, and a comparison between the two is performed.
As mentioned before, 9 regressions were considered, checking for multicollinearity of variables, and exploring possible combinations for a more accurate model.
Before going throw all the results is particularly important to underling that the result presented are different from the ones realised by Ulf Nielsson in his research. Some explanations about these differences will be also presented and underlined later, to point out some issue related with data analysis and data mining.

4.4.1 December 2001- December 2019 results

The first results that are taken in consideration are the one from the full sample, so related to the period: December 2001- December 2019.
The results of the estimation are shown in Table 14, and the specific regression are defined in Annex V.

TURNOVER	Regressions sample December 2001-December 2019								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Merger event $D_{i,t}^{1}$	1.53e+07 (0.964)	-3.71e+08 (0.336)	-6.47e+08 (0.287)	-4.68e+08 (0.313)	**-1.22e+09** (0.002)	-4.75e+08 (0.308)	**-8.94e+08** (0.000)	**-7.68e+08** (0.001)	-2.59e+08 (0.394)
Big*Merger event $D_{i}^{B} * D_{i,t}^{1}$		**2.01e+09** (0.002)	**1.90e+09** (0.004)		**2.18e+09** (0.007)				
Small*Merger event $D_{i}^{S} * D_{i,t}^{1}$		1.20e+08 (0.850)	3.78e+08 (0.630)		1.16e+09 (0.127)				
Foreign exposure* Merger event $D_{i}^{F} * D_{i,t}^{1}$			3.90e+08 (0.552)	2.22e+08 (0.676)		2.31e+08 (0.666)			
Big*Foreign exposure*Merger event $D_{i}^{B} * D_{i}^{F} * D_{i,t}^{1}$				**1.88e+09** (0.004)		**1.88e+09** (0.005)			
External revenues* Merger event $X_{i,t}^{ER} * D_{i,t}^{1}$					**8.91e-01** (0.000)		4.07e-01 (0.151)	-2.93e-02 (0.374)	
Big*External revenues*Merger event $D_{i}^{B} * X_{i,t}^{ER} * D_{i,t}^{1}$					**-8.44e-01** (0.000)				
Small*External revenues*Merger event $D_{i}^{S} * X_{i,t}^{ER} * D_{i,t}^{1}$					-8.04e-01 (0.779)				
EBITDA* Merger event $X_{i,t}^{EBITDA} * D_{i,t}^{1}$						2.17e-03 (0.738)	5.50e-04 (0.899)	**-7.76e+04** (0.103)*	
Market Cap*Merger event $X_{i,t}^{MC} * D_{i,t}^{1}$							**5.64e-01** (0.000)	**5.00e-01** (0.000)	
Market Cap*External revenues*EBITDA*Merger event $X_{i,t}^{MC} * X_{i,t}^{ER} * X_{i,t}^{EBITDA} * D_{i,t}^{1}$								**5.05e-21** (0.000)	**1.41e-20** (0.000)

TURNOVER	Regressions sample December 2001-December 2019								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	1.44e+09 (0.017)	1.44e+09 (0.037)	1.44e+09 (0.036)	1.44e+09 (0.037)	1.44e+09 (0.195)	7.12e+08 (0.038)	1,43e+09 (0.001)	1.61e+09 (0.000)	1.94e+09 (0.001)
Control variable	-3.94e+04 (0.319)	-3.94e+04 (0.316)	-3.94e+04 (0.317)	-3.94e+04 (0.316)	1.62e+04 (0.655)	-3.95e+04 (0.316)	-3.56e+04 (0.183)	-4.89e+04 (0.065)	-7.53e+04 (0.030)
Method of estimation	FE	RE	RE	RE	FE	RE	RE	RE	RE
Housman test result (if <0.05 Fixed-effect model is used)	0.00	0.82	0.08	0.44	-3.21	0.45	0.44	0.53	0.97
R^2 overall	0.00	0.14	0.11	0.13	0.43	0.13	0.71	0.70	0.46
R^2 within	0.00	0.02	0.02	0.02	0.20	0.02	0.57	0.59	0.28
Breusch-Pagan LM test for heteroskedasticity	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 3: Econometric results, subsample 1 from December 2001- December 2019. P-vale is indicated in parenthesis at 5% significance vale. * P-value at 10% significance value. Estimation executed with STATA. Source: Refinitiv and IMF.

In the table it is possible to notice the estimation of the different betas (β_n) attached with the different independent variables. The "Foreign exposure" variable indicate the time-fixed dummy variable used also in the paper of Ulf Nielson to capture the exposure of the firm to the international environment; on the contrary the variable "External revenues", indicates the time-individual varying variable, that takes different values according to the different individuals and time[115].

Results show that the merger event alone do not represent a significant variable, as consequence the merger event according to data is not directly affecting the liquidity of firms as shown in the first regression (1).

In the second regression (2) it is possible then to notice the effect of the merger on firms, distinguishing them between big firms and small firms, using the prior explained techniques of the dummy variables. The only significant variable in this case is the "Big*Merger event" variable, showing a positive coefficient. This suggests the positive impact of the entrance of the Lisbon exchange in the Euronext Group on big companies, that benefit from their high market cap. This result shows how big companies have a direct advantage in the entrance in a more international exchange in terms of homogeneous functioning.

Equivalent results are also in the third regression (3) where, adding the foreign exposure variable, the only statistically significant variable is still the "Big*Merger event".

The fourth regression (4) takes into consideration also the cross-effect, looking at big firms with foreign exposure. The results are particularly interesting since they suggest that, although the merger is not directly affecting the liquidity of the Portuguese companies, big companies that are known internationally, benefit in comparison to others of an increase in their liquidity. Due to multicollinearity issues that will be explained in the next paragraph, it was not possible to perform the same regression for small companies, and so look to their cross-effect.

From the fifth (5) regression the analysis replaces some time-invariant variables with time-individual varying variables, in order to understand the marginal effects[116], and see if this kind of variables are more informative than the prior dummy. The fifth regression substitutes of the dummy of foreign exposure with the direct time-variant external revenues variable, still keeping the dimension of the size in the form of dummy variable. Results show that the merger event per se negatively affect the liquidity of all companies present in the Portuguese exchange, but big companies and companies known internationally are able to mitigate this negative effect on liquidity. As consequence big companies and companies exposed to an international environment have a statistical competitive advantage on small and medium firms; still calculated using the dummy technique for size. Although this positive result, from the data it seems clear that is not possible to conclude that companies with both high capitalization and foreign exposure are mitigating the negative effect on liquidity. On the contrary, it appears clear that big firms with at the same time foreign exposure are punished by the merger event. The coefficient, statistically significant, is in fact of -0.8439192. This is particularly

[115] To remember is the assumption that, if data are not provided the value is automatically translated in a zero, so is assumed zero external revenues linked to the year.

[116] The Marginal effect shows how much a dependent variable change at the change of a specific independent variable.
In this case the marginal effect indicates, due to its interaction with the event study, the mitigation or increase of the liquidity effect on companies with an increasing foreign exposure, EBITDA, or market cap. In simple world how much the liquidity effect decrease/increase at the increase of one unit of the independent variable,

important to underline, since data suggests that only big companies, or companies with foreign exposure can mitigate the negative effect on their liquidity linked with the merger event, that negatively affect on the contrary other types of companies, not considered by the model big or small.

The sixth regression (6) includes in the analysis another dimension of the firm, its productivity, calculated as EBITDA, assuming a time-individual varying characteristic of it. In this regression, only the variable regarding big companies with foreign exposure is significant, showing a positive coefficient. There is not statistically significance as regard the merger event, the productivity of the company and big companies' dimension. This regression is showing contrasting results in comparison with the prior ones, in which the only big market capitalization of the companies played a central role. Given the analysed results till this moment, seems to be present an important problem as regard data and their interaction. The explanation of different issue regarding these results and the possible reasons for this data behaviours will be presented in the next sessions regarding data mining.

The seventh regression (7) changes all the independent variables in time-individual varying, making as consequence possible to access the marginal effect of the merger on the heterogeneity of companies in the sample. Practically, looking at the results, it is possible to affirm that the merger has a statistically negative effect on all Portuguese companies, but at the increase of the size of the companies, calculated at market cap, the negative loss in liquidity is mitigated. In simple words, increasing the market cap of a company, the negative effect on its liquidity, derived from the merger, decreases. As reported by data, productivity (EBITDA) and foreign exposure alone do not represent a characteristic able to mitigate the negative effect of the merger event.

The eighth regression (8) include moreover the cross effect, so take in consideration the increase of companies 'size, external revenues and productivity. In this regression, on the contrary of the prior ones, a high number of variables shows a statistically significance characteristic. From data is clear that the negative effect of the merger event is extremely important but there is a mitigation for companies able to increase their market cap, and their productivity. Also in this case, we have to consider the marginal effect, so at the increase of productivity and size, companies are able to mitigate the negative effect on liquidity. Moreover, companies able to merger different characteristics as productivity, high market cap and foreign exposure, are still showing a positive effect, able to mitigate the negative effect of the merger.

The ninth equation (9) presents as independent variable only the cross-effect.

It is interesting to notice that the higher R-squares are reached by regression taking in consideration only time-individual varying dependent variable, that suits better the results. Moreover, in most of the cases, the method of estimation used is the random-effect model, and not the fixed-effect model, that is proposed by Ulf Nielson in his paper. All regressions, in addition, are characterized by heteroskedasticity (YES in the Breusch-Pagan LM test).

4.4.2 December 2001- December 2009 results

In order to verify the robustness of the results, a second analysis is performed on data.

From 2001 to 2009 a second analysis is performed, to check the stability of the prior results: if the weight of more recent data is able to mislead and affect the analysis, and if the Portuguese crises of 2014 had important consequences of the analysis.

Results of this second analysis are shown in Table 15, where the same regression of the paragraph 4.4.1 were performed.

Starting the analysis of this second sub-sample it is possible to notice how also in this case the evaluation of the merger event in the first regression (1) is not statistically significant.

Looking then at the second and third regressions (2)- (3), data show a similar behaviour of the earlier sample in which big firms seems to have a benefit from the merger, even if the merger itself continue to be statistically equal to zero.

The fourth regression (4), as in the prior case, find the importance of the cross-effect between size and foreign exposure; measured by a dummy variable. Although this positive result, the regression suggests that the "big size" dimension alone result to be statistically insignificant. This still is an indication of some problem regarding data and their structure.

Form the fifth regression (5) variables start to be included as time-individual varying ones. The merger event shows to be statistically different from zero and negative.

Interesting is the fact that both regressions (5) and (6) the cross effect (Big*External revenues*Merger) is the only one different from zero, with a positive sign, indicating also in these case that size alone is not playing an important role as characteristic for firms in order to absorb losses from the merger.

Looking at the seventh regression (7), productivity that in the prior sub-sample played an important role as dependent variable, in this case, reducing the time frame, is statistically equal to zero, leading market cap to be the only important and significant characteristic.

The addition of the cross-effect in the eighth regression (8), lead to a change in the results.

From data in the eighth regression appear evident that the negative effect of liquidity can be mitigate by firms increasing their external exposure, their productivity, but not their market capitalization. This is different to the results obtained in the prior set of regressions, in which size seems to be an important key characteristic for firms in managing their reduction of liquidity, due to the merger event.

Although these last results, the cross effect resulted to be also in this case positive and statistically different from zero both in regression (8) and (9).

On the contrary of the previous analysis, a balance between random-effect and fixed-effect models of estimation is present. In four regressions over nine the fixed-effect model seems to suit better the data. The higher R-square is reached by the seventh regression, and as in the previous analysis the value of R-squares of the overall regressions are not particularly high.

Confronting the results of the two different sub-samples we can notice a certain trend regarding the impact of the market capitalization, the size, of the company on the mitigation of the negative liquidity effect.

Nevertheless, the two sub-samples do not agree on many aspects, as for example the importance of the profitability characteristics as mitigation variable, or the method that have to be used for the estimation.

TURNOVER	Regressions sample December 2001-December 2009								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Merger event $D_{i,t}^{1}$	-5.04e+08 (0.209)	**-8.77e+08** (0.053)	-9.59e+08 (0.191)	**-9.31e+08** (0.092)*	-6.86e+08 (0.148)	**-9.36e+08** (0.091)*	**-1.14e+09** (0.001)	**-4.52e+08** (0.097)*	**-5.99e+08** (0.031)
Big*Merger event $D_{i}^{B} * D_{i,t}^{1}$		**2.04e+09** (0.008)	**2.01e+09** (0.012)		-1.40e+09 (0.206)				
Small*Merger event $D_{i}^{S} * D_{i,t}^{1}$		1.41e+07 (0.985)	7.79e+07 (0.935)		3.54e+08 (0.691)				
Foreign exposure* Merger event $D_{i}^{F} * D_{i,t}^{1}$			1.18e+08 (0.883)	1.01e+08 (0.876)		1.10e+08 (0.865)			
Big*Foreign exposure*Merger event $D_{i}^{B} * D_{i}^{F} * D_{i,t}^{1}$				**2.00e+09** (0.013)		**1.99e+09** (0.014)			
External revenues* Merger event $X_{i,t}^{ER} * D_{i,t}^{1}$					-4.00e-02 (0.843)		-1.39e-02 (0.875)	**-2.38e-01** (0.002)	
Big*External revenues*Merger event $D_{i}^{B} * X_{i,t}^{ER} * D_{i,t}^{1}$					**0.677e-01** (0.005)				
Small*External revenues*Merger event $D_{i}^{S} * X_{i,t}^{ER} * D_{i,t}^{1}$					-2.18e+00 (0.717)				
EBITDA* Merger event $X_{i,t}^{EBITDA} * D_{i,t}^{1}$						-6.26e-04 (0.949)	-1.76e-03 (0.817)	**-3.09e-02** (0.000)	
Market Cap*Merger event $X_{i,t}^{MC} * D_{i,t}^{1}$							**4.83e-01** (0.000)	6.79e-02 (0.245)	
Market cap*External revenues*EBITDA*Merger event $X_{i,t}^{MC} * X_{i,t}^{ER} * X_{i,t}^{EBITDA} * D_{i,t}^{1}$								**1.55e+05** (0.012)	**1.83e-20** (0.000)

TURNOVER	Regressions sample December 2001-December 2009								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	-2.58e+09 (0.061)*	-2.58e+09 (0.058)*	-2.58e+09 (0.058)*	-2.58e+09 (0.058)*	-1.46e+09 (0.244)	-2.59e+09 (0.059)*	-1.79e+09 (0.080)*	-1.07e+09 (0.195)	-4.12e+08 (0.666)
Control variable	2.68e+05 (0.004)	2.68e+05 (0.004)	2.68e+05 (0.004)	2.68e+05 (0.004)	1.82e+05 (0.051)	2.68e+05 (0.004)	2.10e+05 (0.006)	155254.1 (0.012)	1.05e+05 (0.111)
Method of estimation	RE	RE	RE	RE	FE	RE	FE	FE	FE
Housman test result (if <0.05 Fixed-effect model is used)	1.00	0.91	0.30	0.67	-8.25	0.69	0.04	-19.36	-0.78
R^2 overall	0.01	0.10	0.09	0.10	0.22	0.10	0.72	0.55	0.61
R^2 within	0.00	0.07	0.07	0.07	1.19	0.07	0.48	0.66	0.59
Breusch-Pagan LM test for heteroskedasticity	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 4: Econometric results, subsample 1 from December 2001- December 2009. P-vale is indicated in parenthesis at 5% significance vale. * P-value at 10% significance value. Estimation executed with STATA. Source: Refinitiv and IMF.

4.4.3 Main results and issues to underline

As shown in the previous paragraphs some important issues have to be pointed out.

First at all, the analysis is conducted on a sample with a prevalence of recent data, and only a single data is presented before the merger. This of course have consequences on the estimation of the regression, leading recent data to "weight more" than the pre-merger data.

This element must be remembered since, due to the unavailability of older data, was not possible to conduct an empirical investigation of a sample with equal number of pre-merger and post-merger observations.

Moreover, the considered companies are only 22 due to problems in the availability of data and lack of important information about delisted companies prior to 2020. This leads the sample and the related results to face many problems in case of a generalization to the population level. Given the sample characteristics in fact is not possible to generalize the results to the full population of Portuguese companies.

The results delivered by Ulf Nielsson are based on a bigger sample of 79 firms for the Portuguese market, and the sample characterize for a balance time frame between the post and pre-merger event, precisely the used time frame was from 1996 to 2006.

All these elements resulted in the fact that: Ulf Nielsson was able to prove that the merger of the Portuguese exchange with Euronext was beneficial for the overall equity market and an additional benefit was then found for big firms with foreign exposure. Nevertheless, following the paper results, big firm not known internationally suffer a loss linked to the merger event. Nielson was moreover able to look also at small firms, showing how the merger realized some advantages for these types of companies.

In the presented analysis was not possible to evaluate properly the case of small firms since, due to the characteristic of the sample, the inclusion of small companies in the form of dummy variables led to many problems in terms of collinearity among the variables. It was not possible to insert a dummy for Small*Foreign exposure*Merger event, since this was creating problem of multicollinearity with the merger event, with the foreign exposure and big firms' components in the regressions.

As shown in the previous chapter, the Portuguese economy is characterized and based on small and medium firms; and in most of the cases based on a family management and activity.

These types of company unfortunately do not reach the process of IPO, and most of them base their financing on banks-loans or family-loans. The companies in the Portuguese equity market are per se big companies, representing a high market cap in the overall Portuguese economy.

The decision of creating a dummy variable based on an arbitrary percentage of firms that before the merger experienced a high market cap, is not representative of the Portuguese market. This kind of choice can be seen as a selection of big or small firms among big ones. This, in some sense, measled the results and could lead to a generalization that cannot really performed at a population level. Moreover, the fact that this kind of variables are not time-varying leads to the implicit assumption that big firms always remain big and small firms will never grow.

This is the reason why, in this thesis an analysis of the same case with time-individual varying variables was conducted.

With this type of variables, it is possible to examine what is technically called the “marginal effect” of a dependent variable on the output. This means that, using this variable, is possible to see how the increase of the market cap of a firm (proxy of its size), its external revenues (proxy of its foreign exposure) and EBITDA (proxy of its productivity) can mitigate the effects of the merger event.

The econometric analysis in this thesis confirms the results of Nielson on the relevance of the firm's size on the liquidity. Bigger firms are in fact differently affected by the creation of an international and harmonise exchange, even if the analysis did not find evidence that the merger event increase the liquidity turnover of all the companies.

The results of the empirical investigation show that the market capitalisation of a company, taken as proxy of its size, mitigate the negative liquidity effect of the merger substituting the dummy variables created by Nielsson by time-varying variables.

Nonetheless, since the number of observations is not balanced between the pre-merger and post-merger event, the results of this investigations are not fully comparable with the Nielson’s one, taking also in consideration multicollinearity problems.

As shown previously, changing the sample, results are not suggesting the same behaviours.

The results of the two samples are different in many aspects: the importance of the profitability characteristics as mitigation variable (in the subsample productivity do not result to be statistically significant) and the method used for the estimation (sometimes it results to be a fix-effect model and sometimes a random-effect model).

Although the achieved results do not have the same predictive power of the one achieved by Ulf Nielsson, the analysis is useful to identify a structure for the evaluation of the heterogeneity of firms’ responses to the merger event, especially for future empirical research.

4.5 Future research

As presented in the prior section, due to some issues related to samples and data, is quite difficult to identify a clear a path in data able to be generalized to a full population case of Portuguese firms operating in the equity market. Nonetheless, the previous analysis is quite useful to identify a structure for the evaluation of the heterogeneity of firms' responses to the merger event, especially for future empirical research.

For example, Euronext-Dublin was created in 2018, and today data of the post-merger event are not enough to evaluate the consequences of it on the firm's liquidity. This is the exactly opposite case of Euronext-Lisbon. Nevertheless, a future analysis can be performed on the Irish exchange, as well on Oslo exchange and the Italian exchange. A special attention can be given to Euronext-Milan, that officially entered as part of Euronext in 2021, since as shown in the previous chapters, this market shares many characteristics with the Portuguese one.

The presented empirical analysis was created in order to evaluate the consequences in the creation of a homogeneous system of exchanges on the national singular exchanges and companies. It is still possible to apply the same methodology to future cases to better access the consequences and risks in the creation of the Capital Markets Union.

Capital Markets Union represents today in Europe a very complex topic, and not empirical analysis has been performed.

Although the high number of papers on the theorical importance of a unified systems for capital, and in this thesis equity, markets, the presence of empirical tests is not only limited, but also scarce.

If one hand the importance in the creation of the CMU is strengthen by the today necessity of recovering from the Covid-19 pandemic, a too harried structure and system for its creation can create enormous damage that were not calculated due to the lack of empirical tests

Chapter 5

Considerations

Looking back at the importance of Capital Market Union in Europe some doubts and unanswered questions about its structure and management remain above all in assessing the impact and consequences of the completion of this enormous project.

If from one side of the balance, Capital Markets Union could represent an adequate instrument for the recovery of Europe in the post Covid-19, it also has to be underlined that the architecture of the project is not still completely defined. The project characterizes for its complexity and today we are still in a phase of construction, where goals are defined but structure, management and governance are still to be defined.

The consequence of this uncertainty is first of all, the impossibility to look empirically to a solution and evaluation of the project since, without a clear structure, it is impossible to understand what the cardinal centres of the evolution of the CMU will be.

In this thesis it is present an analysis of the architectural structure of the CMU, taking exchanges as central elements. The merger between Euronext and the Portuguese exchange was analysed, taking Euronext as prototype of the Capital Markets Union and some suggestions about a future research were delivered.

Exchanges for centuries evolved, changing their business model and today, looking at the building of the Capital Markets Union project, they can be called to play a fundamental role.

If the capital market business was in somehow “forgotten” by the European Union after the Big Financial Crises of 2008, in order to focus the attention on the creation of a strong and resilient banking system for the European Union as single body, today it appears as one of the drivers of the recovery plan of the future of the next generations of EU citizens.

Exchanges start to ask for a more accurate management and even a stronger support from the European Union. The European Security Market Authority (ESMA) could increase its scope, structure, and represents in the future the main EU authority in the surveillance of exchanges, able not only to look after the harmonised application of the EU law, but also to foster and increase the competitiveness and attraction of the EU markets. The European Union today needs to evolve and finds different solutions to face unexpected events as Covid-19.

Nevertheless, many ways can be proposed and investigated for the potential architecture of the future Capital Markets Union, looking also to new authorities or regulators’ functions in the European Union.

As done previously with the Banking Union, also a separation between macro-micro surveillance and macro-micro legislation could be adopted in the context of capital markets.

All these hypotheses led to even bigger questions about the future of the capital markets in the European Union.

The empirical analysis performed in the previous chapter, can be considered as a first step in the evaluation of the consequences of a harmonisation of exchanges in Europe, and further analysis can be performed in the future using a similar technique, looking if different national markets benefit or not from a harmonisation of

their exchanges.

Is important to remember the differences characterizing the markets for capitals in the EU and understand if the CMU is beneficial for all companies and countries or represents the interests of only a small portion of the European Union.

Moreover, given the present situation of the equity markets in the European Union, experiencing a high number of delisted companies, and with the creation of markets constituted only by big companies, maybe a restructuring or a plan for the evolution and development of SMEs must be taken in consideration.

The scope of this chapter is to present the different architectural proposals that the Capital Markets Union can take in the next years, reasoning on some critical point and, in light with some distinguished organizations 'opinions, to present some future proposals.

The creation of this big new element in the European Union, as the CMU will be, involves the change in the role of many markets 'participants and the creation of new internal mechanisms between them.

As previously observed in the evolution of all the EU bodies, the European Union's actions have to reflect the interest of all involved parts, looking for proposal coming from companies, firms, SMEs, investors, regulatory authority, Member States and in this case also exchanges.

The cooperation of all these players can result in the creation of a strong, resilient, and developed market for capitals in the European Union, not ignoring all the effects, also negative ones, that this project can generate.

In addition, it is important to push further the development of the Lamfalussy process[117] adopted in 2001 by the European Union, revised in the following years, to improve the regulations and supervision of the financial sector in the EU. If this mechanism of cooperation between National Authorities and EU Authority worked quite well in the last 20 years, a further development could be taken in consideration in the creation of the Capital Markets Union.

The differences across countries as regard the types of firms in the national territory, the authorities, and the possible differentiation of markets between highly capitalized companies and SMEs requires a strict cooperation between National supervision and EU supervision today even more than before.

[117] European Commission, 20 November 2007. Communication from the Commission: Review of the Lamfalussy process. Strengthening supervisory convergence. COM/2007/727/final

5.1 Is the Capital Markets Union an advantageous project?

The performed work, based on the prior approach of Ulf Nielsson on the topic, led to some considerations for future and alternative empirical analysis, looking and reasoning on some assumptions of the model of Ulf Nielsson. An alternative evaluation method based of time-individual variables was proposed, leading to important future research possibilities.

Although there is a high number of papers and researches on the theorical benefits and risks of the Capital Markets Union, today there are not many empirical studies on the impact of the CMU.

Even if there is a new wave of enthusiasm in the creation of the Capital Markets Union brought by the Von der Leyen EU Commission presidency, and the need of this project is continuously stressed today; in the EU scenario there are still not a lot of analysis of the empirical consequences of these actions.

The empirical analysis performed on the prior chapter, is a starting point, grounded on a vision of the Capital Markets Union as mechanism of harmonisation of the exchanges, looking at Euronext and its background as possible example of CMU.

The analysis, based on Portuguese market, is an interesting starting point for a future research and provide a possible architectural structure of the CMU, looking at it from the prospective of exchanges.

Today the European Union must deal with the consequences of the economic and social disruption of the Covid virus, and the CMU was further taken as recovery mechanism for this purpose.

A possible scenario for the close future of Europe, after the pandemic, include the impossibility of banks in lending new capital to firms in order to support their recovery. To be specific, National States to face lockdowns behaviours and their consequences during the pandemic, started to increase the number of subsidies to firms and company for the maintenance of workers and infrastructure. Since subsidies cannot be a final solution to fight the future economic consequences of the virus, at the conclusion subsidies by States; many companies will ask for the necessary capital to banks and is possible to predict a high number of companies 'failures in all Europe.

The increase of nonperforming loans in the bank system will decrease the possibility for banks to increase the amount of new loans in the next years, leading to an impoverishment of the EU economy and an increase of failures in the markets.

In this case the presence of a strong market of capitals, as the Capital Markets Union is intended to be, can represent a safe solution. Therefore, the recovery plan of Europe also embeds the building of the CMU.

An important instrument for the recovery is the "Next generation EU" program, presented in 2020.

Following the words of the EU Commission President Ursula von der Leyen: "The recovery plan turns the immense challenge we face into an opportunity, not only by supporting the recovery but also by investing in our future: the European Green Deal and digitalization will boost jobs and growth, the resilience of our societies and the health of our environment. This is Europe's moment. Our willingness to act must live up to the challenges we are all facing. With Next Generation EU we are providing an ambitious answer.[118]"

[118] European Commission President Ursula von der Leyen declaration, May 2020. Europe's moment: Repair and prepare for the next generation. Press release.

The importance of the Capital Markets Union for the recovery was moreover underlined by the High-Level Forum of the Capital Markets Union conducted in June 2020, where the is explicitly stated that: "No Member State nor group of Member States can manage the current crisis, Brexit and the recovery alone, […] and the Capital Markets Union is vital to attain sustainable growth in the EU. "[119]

Nevertheless, although this very important and logic reasoning are published, still not a lot of practical investigations are present to show the real consequence of the Capital Markets Union.

In addition, a heavier question is at the stage and need to be really investigated.

What is the form and structure of the Capital Markets Union?

The CMU is an extremely ambitious project, asking for a revolution of the capital markets in Europe and, although many actions were taken, the architectural structure of it remain not defined.

None knows what the final structure of this project will be and how it will be managed in the next years.

Will it take the form of the Banking Union? Will it be based on the creation of a single and central managed capital markets for the EU? Will it be based on the harmonisation of exchanges, but with the maintenance of national autonomy? Or will the CMU lead to the creation of a new and separate exchange for Europe?

All these questions lead to the possibility to propose and explore different architectural designs in the development of the CMU.

[119] European Commission, June 2020. A new vision for Europe's capital markets: Final Report of the High-Level Forum on the Capital Markets Union. P. 5.

5.2 Different solutions for Capital Markets Union in practice

In the present chapter the Capital Markets Union project has been analysed, proposing a future architectural structure of the CMU.

This section is dedicated to some proposals for the evolution of the equity markets and Capital Markets Union, presenting a recognized opinion at international level, delivered by the Federation of European Securities Exchanges, and some ideas from an architectural point of view in the development of the Capital Markets Union.

5.2.1 FESE proposals

In 2019 the Federation of European Securities Exchanges (FESE) published a paper known as: "FESE Blueprint: Capital Markets Union by 2020, a vision for Europe".

This document answered to the need, manifested by many involved parts, of a clear definition and development of the Capital Markets Union. Since the document is dated 2019, some of these ideas and proposals were also inserted in the new action plan implemented the following year by the European Commission.

Nevertheless, it is interesting to analyse the opinion that a direct involved part has on the creation of the Capital Markets Union, in order to understand what the questions and possible solutions for a player in the market as FESE are.

The Federation of European Securities Exchanges see exchanges as main driver of the new capital markets scenario for Europe, playing a fundamental role in the future competitiveness of Europe at global level.

Taking the FESE point of view, the Capital Markets Union is a key element in the evolution of markets for capital in the European Union and has to create policies able to benefit companies and investors, looking for a further growth of profit for both.

An important element that is then underlined is the implementation of many regulations on markets that, in the last years, after the approval, realised a poor capital markets in terms of number of listed companies.

In particular, is pointed out how directives as the Market Instrument Directive (MiFID) was concentrated more on big companies and liquid stock (usually called blue chips), not paying sufficient attention to Small and Medium Enterprises. The result of this directive, in the opinion of FESE, was the decrease in IPO and a lower economic growth of companies across Europe.

The implementation of the Capital Markets Union in this sense, can reverse this trend focusing not only on big companies but also investing in SMEs, that really represent the future for the market.

According to FESE: "the CMU needs to deliver a holistic equity ecosystem allowing companies to successfully scale up and grow in Europe with attractive financing conditions as well as providing solid investment opportunities to investors[120]".

Moreover, the policy structure to increase the competitiveness and investment in SMEs has to be highly analysed, in order to build a liquid and transparent market environment for companies in a long-term vision.

[120] FESE, 2019. FESE Blueprint: Capital Markets Union by 2024, A vision for Europe, pg. 5

The FESE blueprint publication, did not deliver a proposal structure for the Capital Markets Union, but proposed 20 objectives that need to be achieved before 2024 in order to foster the EU growth in the field of capital markets. These objectives are presented in Table 16.

It is important to remember that FESE work closely with many exchanges across Europe, and as consequence they see in the evolution of these market players the main source of efficiency for the development of the Capital Markets Union.

Table 16: FESE proposals for the development of the Capital markets Union.

	Proposed objectives of the Capital Markets Union by FESE Blueprint of 2019
1	The CMU should be framed around a holistic regulatory agenda
2	Increase the overall size of EU public capital markets;
3	Strengthen supervisory convergence while preserving the role and value of national competent authorities (NCAs);
4	Increase the overall size of EU public capital markets;
5	Reject the adoption of transaction taxes given the detrimental impact this would have on public capital markets;
6	Support measures to foster financial literacy for both investors and entrepreneurs;
7	Increase levels of retail investor participation in public capital markets
8	Increase levels of institutional investor participation in public capital markets;
9	Support local ecosystems;
10	Support an increase in the proportion of price forming trading taking place on lit trading;
11	Promote liquid markets with efficient price formation
12	Ensure that market data issues are assessed holistically, with a focus on assessing the entire industry value chain and safeguarding price formation;
13	Allow benchmarks to serve the economy as already intended by current legislation;
14	Support a position limits' regime that allows new products to flourish
15	Support an extension of the EMIR clearing obligation to all standardised derivatives contracts
16	Support the removal of ETDs from MiFIR's 'non-discriminatory' access provisions
17	Safeguard a level playing field of activities in the field of new technologies by applying the principle "same business, same rules";
18	Support Europe in mobilising sustainable finance;
19	Ensure that an EU equivalence regime preserves market stability as well as open, competitive and global markets;
20	Ensure that EU equivalence rules do not unduly restrict market innovation and the ability to provide EU investors with access to global capital markets

Source Table 16: FESE, 2019. FESE Blueprint: Capital Markets Union by 2024, A vision for Europe, pg. 8.

5.2.2 Regulatory architectural proposals

An interesting element to analyse in the architectural design of the Capital Markets Union is the role played by the regulatory authorities and their future possible development at regulatory level.

Today the surveillance and regulation of capital markets is in the hand of ESMA, that oversees the coordination of the supervision of different regulations and policies dealing with capital markets, confronting continuously with the National Competent Authorities. One of the missions of ESMA is also the supervision of the market stability and integrity, requiring a close cooperation with the European Central Bank and European Commission.

It is particularly important to point out the close relation of ESMA with the EU Commission; ESMA in fact do not characterize as independent authority in the EU scenario but as agency of the European Commission.

Looking at the Capital Markets Union it is possible to suggest a change in the role and powers of ESMA, playing a more concrete and substantial role in the managing of the CMU. The revision of the powers and role of ESMA, and in general of all ESAs[121], is not an unexpected event, since periodically these authorities are subject to revision and restructuring. In particular, the last revision of ESMA is dated December 2019 and is effective from the first of January 2020[122].

What can be the future scenario in the regulatory field in the implementation of the Capital Markets Union?

Looking at the prior experience of the Banking Union, two pillars were created: The Single Supervisory Mechanism (SSM), and The Single Resolution Mechanism (SRM), based on an ex-ante supervision and an ex-post control of banks. The SSM in fact oversees the ex-ante supervision of banks assessing and managing the systematic risk of the banking system, closely cooperating with National Authorities; and the SRM is in charge of managing the efficient resolutions of banks.

All the process is based on the cooperation between National Authorities, European Authorities as the EU Commission and ECB, and European Agencies as the European Banking Authority (EBA).

This last one, EBA, is the correspondent agency of ESMA in the banking field. These similarities can suggest a parallelism between the Banking Union and the Capital Markets Union architecture, looking as consequence to a new role for ESMA.

At regulatory level in fact, it is possible to think to a different role and mechanism of supervision of the Capital Markets Union, enchanting the powers and structure of ESMA, looking also at its relationship with the National Authorities.

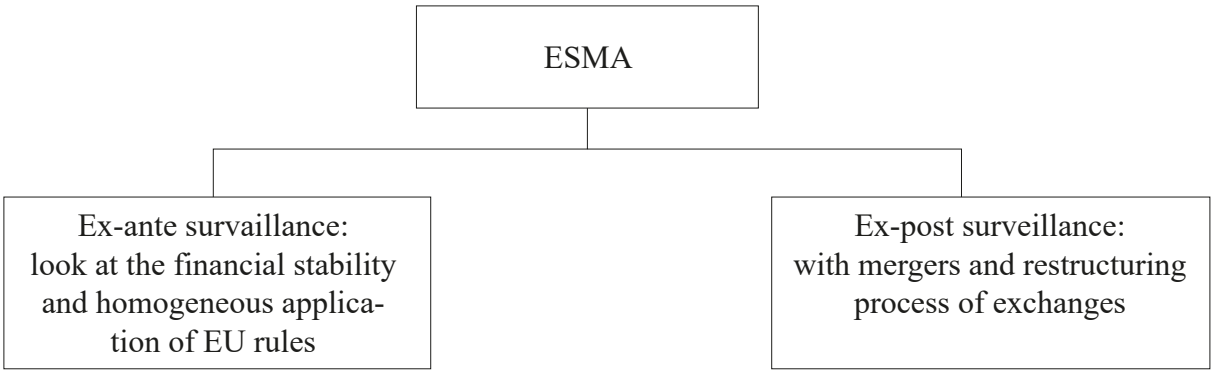
Thinking that the Capital Markets Union will take a similar form of the Banking Union, it is possible to hypothetically think to the creation of a subdivision of the internal structure of ESMA distinguishing between ex-ante and ex-post surveillance of the market. This theory needs a further explanation, since on the contrary of banks, that can follow an insolvency procedure if needed, capital markets and exchanges should not fail. Nevertheless, if we think at exchanges as companies, their failure cannot be excluded. If on one side ESMA

[121] ESMA, EBA, EIOPA

[122] European Securities and Market Authority (ESMA). ESA review. ESMA website. https://www.esma.europa.eu/about-esma/who-we-are/esa-review

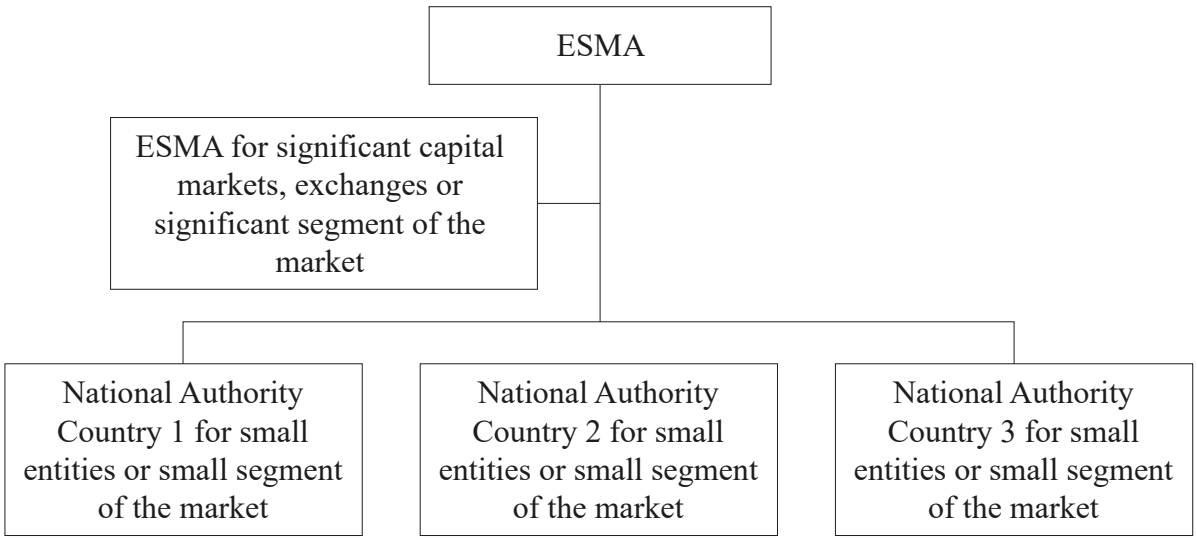
can control the stability of the capital markets, ensuring the correct functioning of it, on the other side it can also deal with the mergers of exchanges, their change of ownership or their restructuring in case of their financial uncertainty. We can call this new function of ESMA as ex-post surveillance, even if it does not take the exact same meaning of banking sector. This new structure is presented in Figure 43, were we have the separation of the ex-ante and ex-post surveillance inside ESMA.

Figure 43: First proposal for a new ESMA structure based on ex-ante and ex-post surveillance.



Another possible architectural structure, dealing with a different role played by ESMA is the one presented in Figure 44. Instead of assuming a separation between an ex-ante and ex-post surveillance of ESMA, is possible to suggest a system of control of capital markets based on a fragmentation between "significant" markets and "small" markets. Also in this case, taking inspiration from the Banking Union, the division of exchanges and in general capital markets could be performed on the base of their significant role and their dimension. To be clear, this proposal suggests an architectural structure of ESMA that focus on the surveillance of significant capital markets and exchanges, leaving to the National Authorities the surveillance of the small entities. Moreover, these division of roles can be performed in two ways: fist assign to ESMA the surveillance of big exchanges, capital markets, whose complex structure ask for an international management, and leave to National Authorities the surveillance of the remaining small entities; or second, assign to ESMA the surveillance of the segment of the markets, exchanges characterized by highly capitalize firms, and leave to National Authorities the surveillance of markets, exchanges involving SMEs. To make a reference with the case of Euronext Group, give to ESMA the control of the main sector "Euronext", and leave to each National Authority the surveillance of "Euronext Access" and "Euronext Growth".

Figure 44: Second proposal for a new ESMA structure based strategic and non-strategic surveillance.



Both these suggestions implicitly assumed the presence of National Authority in charge of the local surveillance of market, in order to increase the supervision and efficiency in the application of EU laws and functioning of the Capital Markets Union, as suggested by the Lamfalussy process.

5.2.3 Exchange architectural proposals

Due to their particular role in the capital markets, exchanges can play a very important role in the creation of the Capital Markets Union.

Multiple possibility as regard their interaction and their possible federal form of management could be performed to achieve the European objective.

First at all is possible to think of a harmonization of all exchanges across Europe, thinking to them as part of one same group. In this case the Capital Markets Union can be seen as an enlargement of the Euronext group where each national market maintains different characteristics, but there is a homogenisation of the rules and procedures across them. This possibility will increase the confidence of investors in participating in different markets across Europe, increase the amount of information shared across exchanges in a single and accessible format; and possibly help a further harmonisation between Member States in a long-run prospective. This action could result to be not only costly in terms of economic and monetary reasoning but also face the strong opposition of the present exchanges that would like to maintain their independence. Moreover, due to their modern characteristics of exchanges, a reasoning on their public not-for-profit or private for-profit function must be performed.

Assuming a public ownership, should be this in the hand of the European Union, or all States should own a part of it? Assuming on the contrary a private ownership, there may be necessary to limit the ownership to EU citizens? Exchanges, and enlarging all the capital markets, are fundamental structures for the development of the EU economy and should be preserved, or all people around the world have the right to drive the EU's economy through exchanges?

Looking at this problem from a pure neoclassical approach, the public intervention in the field of the economy

and exchanges should be kept at the possible minimum level but, looking at their fundamental role in the society, they can be considered as bank, element embedding a high social interest; and as consequence asking for higher regulation and control. The presence of this social interest makes exchanges even more important now, looking at them as a possible solution for Europe to recover from the Covid-19 pandemic. If the exchanges embed a social interest, fundamental for the growth of Europe and its competitiveness across the world, they need a regulation, not only based on their ownership, but also on their implicit functioning.

This, as in the case of banks, will ask for the creation of important and structured reforms in the European Union today that can face the strong opposition of National Member States.

Ignoring the time-length requested for this action, that looking at the past legislation of the EU is not so short, still this proposal ask for a full support and increased cooperation of each member of the European Union. The Brexit case demonstrate, as the East-European political movement, and the new national political parties emerging in all the European Union, how the support to the EU as single body start to decrease in the present time.

This vision of a harmonized but still national structure for exchanges can be the possible explanation for the name “Capital Markets Union”, where the structure is seen as the union of different markets, keeping national characteristics.

A second proposal can be seen in light of this last statement as: the harmonisation of exchanges not through the acquisition of the today’s markets, but through a high increment in the regulatory requirement and standards. An indirect way for the creation of this “group of exchanges” is the pushing of the regulatory authority both at National level and European level for a higher harmonisation, asking to all exchanges to share information, trading platforms, clearing houses systems and rules. This still require a high and predominant wiliness of Member States to cooperate and, can face the intolerance of the present and actual owners of the different exchange and exchange groups in Europe.

A third propose about the structure of the exchanges in the creation of the Capital Markets Union can be performed looking at the problem from a completely different prospective. If is not possible to buy, can be possible to build from zero. Instead of acquiring the present exchanges, is possible to think to the creation of an additional “Single Exchange” for all European Countries, competing with the present National exchanges. After a Single Market and Single Currency, a Single Exchange can have the same consequences and potential benefit in terms of harmonisation.

In this way, all companies and investors participate on a single big exchange representing all the EU territory. A subdivision of this EU-exchange can be performed based on the different need, creating as regard the equity part for example, a market for SMEs and one for big companies, as different markets for derivatives. This possibility can increase the interaction between all Member States and, will create a big environment for companies and investor where is possible to share resources without any border.

Looking at this possibility nevertheless many problems can raise. First as in the previous case the ownership of this EU-exchange has to be defined. Secondly, the management and control of this exchange with a multinational characteristic can result to be very complicated, since could not be performed by all the different

National Authority but ask for a specific authority with a high amount of legislative and economic power at EU level. Thirdly, the creation of a Single Exchange can face the opposition of the different Member States that could be resilient to give the control of their national capital markets to the European Union. In addition, if on one side the creation of a single exchange can lead to the increment of harmonisation across States, is also true that the degree of capital markets development across Member States is very diversify. Many investors will be more familiar with an exchange operating in his/her own language and respecting his/her culture. Moreover, due to the high degree of diversification across all EU exchanges will be not completely unreasonable if this kind of exchange will benefit only big companies able to have the strength and time to afford an international IPO and subsequent trade. The transaction process in the creation of this Single Exchange could result to be complicated and costly; facing the opposition not only of National Parties but probably also of the existent exchanges that could see in this single exchange a competitor.

5.2.4 Multi-speed Capital Markets Union proposal

One interesting proposal can be performed as regard the creation of the Capital Markets Union as a Union by phases, looking at the model of the Banking Union.

Although the high degree of diversification across countries, in the European Union there is a significant number of SMEs in all different Member States, that do not actively compete and enter in the National capital market but remain based on a banking system or family system of financing. Each State has distinct characteristics, and in somehow, each National Competent Authority knows its own national situation and market. It can be interesting to develop a double and complementary program in the evolution of capital markets across Europe, one taking the form of the Capital Markets Union for big companies, that already experience a strong international exposure, and one taking the form of a program for the development of National Capital Markets for SMEs, based on the national environment, local knowledge; pushing small firms to enter and grow in a national environment for subsequently operate at the EU level in the Capital Markets Union.

This structure can in some sense represent and be in accordance with the creation of a Multi-speed Europe.

This term refers to the recent discussion about a different integration process of different States in the European Union, maintaining the same final objective, but allowing for different time of development.

This concept can be reused in this context and be adapted to the economic environment.

In this scenario is possible to allow all big companies and companies that operate at international level in the European Union to compete and immediately take advantage form the creation of the Capital Markets Union and leave the time to National Authority to operate and foster the growth of SMEs for a further entrance in the big and integrated market represented by the Capital Markets Union.

This proposal has as same objective the creation of an integrated and functioning Capital Markets Union for all Europe, but at the same time allow for the diversification of national process in the field of SMEs.

As mentioned, many times in this thesis, SMEs represent the future for the economic growth of the EU, since even if have higher problems in surviving and attracting founding, if they manage to do so, this type of

companies embed a high rate of growth and represent the majority of companies in many States in Eu, as shown in the case of Portugal.

Of course, this kind of proposal require a high degree of cooperation between EU Authority and National Authority, that should closely work in order to achieve the same objective. Policies for the development and support of SMEs need to be implemented at national level, with the supervision of the European Union, but without the stricter control of this supranational organisation.

This approach could in some way mitigate the tension between National States and the European Union, since allow both the parts to cooperate for a future benefit, without imposing a strong surveillance of dominance of one over the other.

Moreover, this initiative can allow for the diversification across States, that knowing their internal market, can adapt the policies that better fit their specific environment.

Conclusions

This thesis aims to explore the empirical and regulatory consequences of the creation of the Capital Markets Union, on the different national environment in Europe.

The Capital Markets Union on a theoretical point of view seems to be not only a profitable project for the EU, but also one of the main drivers in the rebuilding of the financial and economic wealth of Member States after the Covid-19 pandemic in the today's scenario.

The EU project grounds its origin in the need of harmonisation of the different National capital markets present in the Member States, to foster the growth of the EU as single entity, to increase the competitiveness of EU capital markets across the world and to increase the financial stability of the EU economy.

The need and the research for a strong financial stability in the EU, based on the control of the internal systematic risk, that today is grounded only on the managing of the banking system, remains one of the priorities in the EU agenda; asking as consequence to alternative form of capital seeking, able to support and diversify the European source of founding.

The CMU in fact sets as main goals the creation of a strong alternative form of financing, different from the banking system, able to empower firms, citizens, and investors. The high reliance of firms on the banking system in Europe today is still a matter of fact, but the creation of a strong and profitable capital market in Europe can represent a way for diversifying investment sources from the point of view of investors and rely on different and source of financing for firms. Today the development of capital markets in certain Member States is very low, and as explored in the case of the Portuguese market, markets are characterized by the presence of already big and highly capitalize companies.

An important element to take in consideration is moreover the presence of small and medium enterprises in the European market, that represent in many countries the main driver of the National economies, with the higher growth rate and the higher possibility to be the next generation of big companies if correctly supported. The creation of a strong capital market is also aimed to increase and foster the growth of small and medium enterprises, that today are completely based on a bank source of financing or internal family financing.

The importance of the Capital Markets Union, furthermore, is today pushed and increased by the present need for a strong system of financial support to companies, States, and citizens in light with the Covid-19 pandemic. The rebuilding of the financial stability and wealth of the EU needs an additional system of support to the economy, different to the common Bank mechanism presenting today high standard of regulations that unfortunately will be not able to fully support the need of financing of the different entities in the European Union.

The project of the Capital Markets Union, started in 2015, today still characterises for the high complexity in its architectural proposal. The complex structure allows the researchers and the involved parts to ask what will be the final structure of this enormous project that is employing the EU Commission for many years; and what consequences will have on the suture and functioning of the different National participants. Although the high number of studies on the consequences of the Capital Markets Union from a theorical point of view, there are in fact few empirical investigations on such a topic, due to the complexity of the CMU project.

The research looks at the Capital Markets Union under the point of view of a harmonized conglomeration of exchanges, trying to test some hypothesis by an econometric analysis.

Euronext is taken as empirical prototype of the Capital Markets Union, and the analysis further concentrate on Euronext-Lisbon to assess the responses of domestic firms experiencing the entrance in a harmonized international environment provided by Euronext.

The thesis, starting from the work of Ulf Nielsson of 2008, empirically evaluates the consequences of the merger between Euronext and Bolsa de Valores de Lisboa e Porto in 2002 on different Portuguese firms, assessing the heterogeneity in companies' responses based on their individual characteristics, differentiating for big companies, firms experiencing foreign exposure and profitable firms.

The econometric analysis confirms the results of Nielson on the relevance of the firm's size on the liquidity. Bigger firms are in fact differently affected by the creation of an international and harmonise exchange, even if the analysis does not confirm the positive effect of the creation of Euronext-Lisbon on the stock liquidity of the different companies.

Nonetheless, since the number of observations is not balanced between the pre-merger and post-merger event, the results of this investigations are not fully comparable with the Nielson's one, taking also in consideration multicollinearity problems. By using this methodology, based on panel data, is also possible to test the more recent acquisitions of Euronext, looking for example at the Norwegian market or at the new acquisition of Borsa Italiana in 2021.

Nevertheless, the conducted investigation was not based only on the empirical test of the heterogeneity of companies' responses to the creation of the Capital Markets Union, but also on the proposal of different regulatory and structural system for the forthcoming build of the CMU.

The empirical analysis based its reflection on a CMU grounded in harmonized exchanges, but different future scenario can be proposed both looking at the regulatory authority and on the structure of the different National capital markets. The creation of the Capital Markets Union in fact, can be performed both through the creation of a Single Capital Market for all EU States, or the creation of a system of exchanges and/or capital markets.

Due to the evolution of the business of exchanges in the world, all this supposition led to many questions based on the governance and role played by these entities in the CMU.

If for the banking system banks are considered fundamental elements for the stability of National States, the creation of strong exchanges, able to drive and support the European economy, will increase their fundamental role in the society and in the EU economic stability. This new possible role of exchanges as consequence will ask for a new set of regulations and controls performed by pertinent authorities.

The creation of the CMU asks a revolution of the surveillance of the capital markets in Europe, conducted by a possible empowered ESMA or a new structure able to meet the need of regulation and control of the Capital Markets Union.

To conclude, the present unanswered questions on the Capital Markets Union are a lot, even if it surprisingly meets the approval of many involved States. Nevertheless, the need of further empirical investigation and research has to be considered before the implementation of these project, since a theoretical analysis based on

suppositions is not enough to fully cover and explore the real consequences in the creation of the Capital Markets Union.

Bibliography

1. Admati, A.R., DeMarzo, P.M., Hellwig, M.F. and Pfleiderer, P., 2010. *Fallacies, irrelevant facts, and myths in the discussion of capital regulation: Why bank equity is not expensive* (Vol. 86). Max Planck Inst. for Research on Collective Goods.
2. Alexakis, P. and Vasila, A., 2013. *On the integration of European capital markets*. Managerial Finance.
3. Ambromobiliare, December 2020. *Borsa Italiana ed Euronext: mercati per le PMI a confronto*. Presentation.
4. Amihud, Y. and Mendelson, H., 1986. *Liquidity and stock returns*. Financial Analysts Journal, 42(3), pp. 43-48.
5. Andrews, D., M. Adalet McGowan and V. Millot, 2017. *Confronting the zombies: Policies for productivity revival.* OECD Economic Policy Papers, No. 21, OECD Publishing, Paris.
6. Association for Financial Markets in Europe (AFME), 2019. *Annual Review 2019- Europe's Capital Markets: The next phase and new challenges.*
7. Association for Financial Markets in Europe (AFME), April 2019, *Creating an integrated Financing Union for the EU: The important role of Banking and Capital Markets Unions.*
8. Association for Financial Markets in Europe (AFME), July 2020.*Understanding the Liquidity landscape in European Equity markets*.
9. Association for Financial Markets in Europe (AFME), October 2020. *Capital Markets Union: key performance indicators, third edition, challenges, and progress in 2020.*
10. Banco de Portugal, 2009. *The Portuguese Economy in the Context of Economic, Financial and Monetary Integration.* Economics and Research Department Banco de Portugal.
11. Banco de Portugal, December 2020. *Financial stability report*.
12. Barbu, T.C. and Străchinaru, A.I., 2016. *Capital Markets Union: Opportunities and Impact on the European Financial Market.* Studies in Business and Economics, 11(2), pp.140-157.
13. Bhatia, M.A.V., Mitra, M.S., Weber, A., Aiyar, M.S., de Almeida, L.A., Cuervo, C., Santos, M.A.O. and Gudmundsson, T., 2019. *A capital market union for Europe*. International Monetary Fund.
14. Biblioteca Escolar. *Recursos Temáticos História E Geografia De Portugal 5º, Sec. XV, XVI*. https://docplayer.com.br/74086840-Portugal-sec-xv-e-xvi.html
15. Blanchard, O.J., 2009. *The crisis: basic mechanisms and appropriate policies*. IMF working papers, pp.1-22.
16. Borusyak, K. and Jaravel, X., 2017. *Revisiting event study designs*. Available at SSRN 2826228.
17. Britannica encyclopaedia. *Napoleonic Code*. https://www.britannica.com/topic/Napoleonic-Code.
18. Clarke, D., and Schythe, T.K., July 2020. *Implementing the Panel Event Study*. IZA Publication, 13524.
19. Di Noia, C. and Filippa, L., 2021. *Looking for New Lenses: How Regulation Should Cope with the*

20. Di Noia, C., 2001. *Competition and integration among stock exchanges in Europe: Network effects, implicit mergers, and remote access*. European Financial Management, *7*(1), pp. 39-72.
21. Domowitz, I., 1996. *An exchange is a many-splendored thing: The classification and regulation of automated trading systems.* In The industrial organization and regulation of the securities industry, pp. 93-124. University of Chicago Press.
22. Economou, F., Gavriilidis, K., Goyal, A. and Kallinterakis, V., 2015. *Herding dynamics in exchange groups: Evidence from Euronext*. Journal of International Financial Markets, Institutions and Money, 34, pp. 228-244.
23. Elliot, J., July 2002. *Demutualization of securities exchanges: A regulatory prospective*. International Monetary Fund (IMF) working paper.
24. Espinosa-Méndez, C., Gorigoitía, J. and Vieito, J., 2019. *Stock exchange mergers: a dynamic correlation analysis on Euronext*. Portuguese Economic Journal, pp. 1-18.
25. Euronext 2010-2020*. Boletim Cotações.* From 2010 to 2020.
26. Euronext, 2019. *Euronext FAQ 2019*. Euronext publication, 07.
27. Euronext, 2020. *20 years of Euronext: a journey of ambition, innovation, and success.* https://www.euronext.com/en/20-years-euronext
28. Euronext, 29 April 2021. *Euronext completes the acquisition of the Borsa Italiana Group and publishes its Q1 2021 Results*. Press release. file:///C:/Users/pc/Downloads/20210429_Euronext_Q121_Results%20vFinale.pdf
29. European Central Bank (ECB), 2 September 2020. *Europe needs a fully-fledged capital markets union now more than ever*. ECB blog. https://www.ecb.europa.eu/press/blog/date/2020/html/ecb.blog200902~c168038cbc.en.html
30. European Central Bank (ECB), March 2020. *Financial Integration and Structure in the Euro Area*. Report.
31. European Central Bank (ECB), May 2017. *Financial Integration in Europe*. Report.
32. European Commission and Market structure Partners, September 2020. *The study on the creation of an EU consolidated Tape.*
33. European Commission, 18 February 2015. *Green paper: Building a Capital Markets Union*. SWD (2015) 13 final.
34. European Commission, 19 January 2021. *What is the Capital Markets Union?* Factsheet. https://ec.europa.eu/info/sites/info/files/business_economy_euro/growth_and_investment/documents/200924-capital-markets-union-action-plan-factsheet_en.pdf
35. European Commission, 20 November 2007. *Communication from the Commission: Review of the Lamfalussy process Strengthening supervisory convergence*. COM/2007/727/final
36. European Commission, 2017. *Legislative measures taken so far to build a CMU.* https://ec.europa.eu/info/business-economy-euro/growth-and-investment/capital-markets-union/legislative-measures-taken-so-far-build-cmu_en

37. European Commission, 2020. *Capital markets union 2020 action plan: A capital markets union for people and businesses*. https://ec.europa.eu/info/business-economy-euro/growth-and-investment/capital-markets-union/capital-markets-union-2020-action-plan_en
38. European Commission, 2020. *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. Europe's moment: Repair and Prepare for the Next Generation*. COM (2020) 456 final
39. European Commission, 2020. *Recovery plan for Europe*. EU commission website. https://ec.europa.eu/info/strategy/recovery-plan-europe_en
40. European Commission, 2020. *What is the capital markets union? General information on the objectives of the capital markets union*. EU commission website. https://ec.europa.eu/info/business-economy-euro/growth-and-investment/capital-markets-union/what-capital-markets-union_it
41. European Commission, 24 September 2020. *Capital Markets Union: Commission to boost Europe's capital markets*. Press release. https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1677
42. European Commission, 24 September 2020. *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A capital Markets Union for people and business-new action plan*. COM (2020) 590 final.
43. European Commission, 24 September 2020. *Questions and Answers on the Capital Markets Union Action Plan*. EU commission website. https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_1676
44. European Commission, 27 May 2020. *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee ff the Regions: Europe's moment: Repair and Prepare for the Next Generation*. SWD (2020) 98 final
45. European Commission, 8 June 2017. *Completing the Capital Markets Union: Building on the first round of achievements*. Press release. https://ec.europa.eu/commission/presscorner/detail/en/IP_17_1529
46. European Commission, June 2017. *Completing the Capital Markets Union: Building on the first round of achievements*. Press release. https://ec.europa.eu/commission/presscorner/detail/en/IP_17_1529
47. European Commission, June 2017. *Factsheet: CMU Mid-term Review.* Factsheet. https://ec.europa.eu/info/sites/info/files/factsheet-cmu-mid-term-review-june2017_en.pdf
48. European Commission, June 2020. *A new vision for Europe's capital markets: Final Report of the High-Level Forum on the Capital Markets Union*.
49. European Commission, May 2020. *Europe's moment: Repair and prepare for the next generation*. Press release. https://ec.europa.eu/commission/presscorner/detail/en/ip_20_940
50. European Commission, May 2020. *The EU budget powering the recovery plan for Europe*. Publications Office of the EU. https://op.europa.eu/fr/publication-detail/-/publication/e0956910-a0c9-11ea-9d2d-01aa75ed71a1/language-en/format-PDF/source-193486136

51. European Commission, September 2015. *Commission staff working paper: Economic Analysis. Accompanying the document: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Action Plan on Building a Capital Markets Union.* COM (2015) 468 final, SWD (2015) 184 final.
52. European Commission, September 2015. *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Action Plan on Building a Capital Markets Union.* SWD (2015) 183 final, SWD (2015) 184 final.
53. European Parliament and European Council, 15 December 2004. *Directive on the harmonisation of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market and amending Directive 2001/34/EC*. Directive EC (2004) 109.
54. European Parliament and European Council, 4 November 2003. *Directive on the prospectus to be published when securities are offered to the public or admitted to trading and amending Directive 2001/34/EC*. Directive EC (2003) 71.
55. European Securities and Market Authority (ESMA), 18 November 2020. *EU securities markets: ESMA Annual Statistical Report.* ESMA-50-165-1355
56. European Securities and Market Authority (ESMA). ESA review. ESMA website. https://www.esma.europa.eu/about-esma/who-we-are/esa-review
57. European Securities and Market Authority (ESMA). ESMA in brief. ESMA website. https://www.esma.europa.eu/about-esma/esma-in-brief
58. FESE, 2019. *European Exchange Report: 2019*. FESE Economics and Statistics Committee. https://fese.eu/app/uploads/2020/07/European-Exchange-Report-2019_Final.pdf
59. FESE, 2019. *FESE Blueprint: Capital Markets Union by 2024, A vision for Europe.* Report
60. FESE, 2020. *European capital markets factsheet: Q1 2020.* Factsheet
61. FESE, 30th July 2020. *FESE Paper on the Evolution of EU Equity Market Structure.*
62. FESE, June 2020. *A post crisis framework for European capital markets*. Report.
63. Gabinete de Estratégia e Estudos (GEE), April 2020. *Dashboard on Credit, Indebtedness and Investment of Firms*. Repùblica Portuguesa**,** Ministério da Economia e da Transição Digital**.** Report.
64. Gabinete de Estratégia e Estudos (GEE), December 2020. *Main economic indicators*. Repùblica Portuguesa**,** Ministério da Economia e da Transição Digital**.** https://www.gee.gov.pt/pt/?option=com_fileman&view=file&routed=1&name=Principais%20Indicadores%20Economicos%20de%20Portugal_30_12_2020.pdf&folder=publicacoes%2Fprincipais%20indicadores%20economicos%20de%20portugal&container=fileman-files
65. Gameiro, I.M. and Ribeiro G.N., 2007. *Financing costs of Portuguese companies*. Economic Bulletin Banco de Portugal. pp. 113-126.
66. Geranio, M., 2016. *Evolution of the Exchange Industry: From Dealers' Clubs to Multinational Companies*. Springer International Publishing, Switzerland 2016.

67. Greene, W.H., 2003. Econometric analysis. Pearson Education India.
68. Il sole 24 ore Journal, 29 April 2021. *Euronext chiude su Borsa, Intesa e Cdp entrano in aumento*. https://www.ilsole24ore.com/art/euronext-closing-borsa-italiana-intesa-e-cdp-entrano-aumento-AEkFhkE?refresh_ce=1
69. International Monetary Fund (IMF), 10 September 2019. *A Capital Market Union for Europe: Why It's Needed and How to Get There*. IMF Blog. https://blogs.imf.org/2019/09/10/a-capital-market-union-for-europe-why-its-needed-and-how-to-get-there/
70. International Monetary Fund (IMF), July 2019. *2019 Article IV consultation*. IMF Country Report No. 19/221.
71. International Organization of Securities Commissions (IOSCO), December 2000. *Discussion paper on stock exchange demutualization.*
72. Juncker, J.C., 15 July 2014. *A new start for Europe: Opening statement in the European Parliament plenary session*. Candidate for President of the European Commission speech. Strasburg.
73. Kohler, U. and Kreuter, F., 2005. *Data analysis using Stata*. Stata press.
74. Langfield, S. and Pagano, M., 2016. *Bank bias in Europe: effects on systemic risk and growth*. Economic Policy, 31(85), pp. 51-106.
75. Mata, M.E., da Costa, J.R. and Justino, D., 2017. *The Lisbon stock exchange in the twentieth century*. Imprensa da Universidade de Coimbra/Coimbra University Press.
76. McAndrews, J., and Stefanadis, C., June 2002. *The Consolidation of European Stock Exchanges*. Current issues in economics and finance, Federal reserve bank of New York, 8, no.6.
77. McGowan, M.A., Andrews D., and Millot, V., Jan 2017. The walking dead? zombie firms and productivity performance in OECD countries. Economics department working papers no. 1372, OECD publication.
78. Mulherin, J.H., Netter, J.M. and Overdahl, J.A., 1991. *Prices are property: the organization of financial exchanges from a transaction cost perspective*. The Journal of Law and Economics, 34(2, Part 2), pp. 591-644.
79. National Productivity Board of Portugal, March 2019. *The productivity of the Portuguese economy: First report of the national productivity board*.
80. New York Encyclopaedia. New York Stock Exchange. Website. https://www.newworldencyclopedia.org/entry/New_York_Stock_Exchange#History
81. Nielsson, U., 2009. *Stock exchange merger and liquidity: The case of Euronext*. Journal of Financial Markets, *12*(2), pp. 229-267.
82. OECD, 2016. *Changing business models of stock exchanges and stock market fragmentation*. OECD Business and Finance Outlook 2016. OECD Publishing, Paris.
83. OECD, 2020. *Capital Market Review of Portugal 2020: Mobilising Portuguese Capital Markets for Investment and Growth*, OECD Capital Market Series.

84. OECD, 2020. *Improving access to capital for Portuguese companies: A survey of unlisted companies*. OECD Capital Market Series, Paris.
85. OECD, 2020. *OECD Capital Market Review of Italy 2020: Creating Growth Opportunities for Italian Companies and Savers*. OECD Capital Market Series.
86. OECD, 2020. *Portugal in Financing SMEs and Entrepreneurs 2020: An OECD Scoreboard*. OECD Publishing, Paris.
87. OECD, 2020. *Understanding Delisting from the Portuguese Stock Market*. OECD Capital Market Series, Paris.
88. OECD, February 2020. *OECD economic survey: Portugal.*
89. Orlowski L.T., 2020. *Capital Markets integration and economic growth in the European Union*. Journal of Policy Modelling, 42(4), pp. 893-902.
90. Oxera, March 2019. *The design of equity trading markets in Europe: An economic analysis of price formation and market data services*.
91. Oxera, November 2020. *Primary and secondary equity markets in the EU*. Final report
92. Pagano, M. and Padilla, A., 2005. *Gains from stock exchange integration: the Euronext evidence*. Centre for Economic Policy Research Working Paper.
93. Pagano, M., S.Langfield, V. Acharya, A.Boot, M. Brunnermeier, C. Buch, M. Hellwig, A. Sapir, I. Van den Burg, 2014. *Is Europe overbanked?* Report 4, European systematic risk board's advisory scientific committee.
94. Pownall, G., Vulcheva, M. and Wang, X., 2014. *The ability of global stock exchange mechanisms to mitigate home bias: Evidence from Euronext. Management Science*, 60(7), pp.1655-1676.
95. Quaglia, L., Howarth, D. and Liebe, M., 2016. *The Political Economy of European Capital Markets Union*. Journal of Common Market Studies, 54, pp. 185-203.
96. Repùblica Portuguesa, 15 December 2018. New contract of 100 billion of euros with FEI for companies 'capitalization. Press release https://www.portugal.gov.pt/pt/gc21/comunicacao/noticia?i=novo-contrato-de-100-milhoes-de-euros-com-o-fei-para-capitalizacao-das-empresas
97. Sapir, A., Véron, N. and Wolff, G.B., 2018. *Making a reality of Europe's Capital Markets Union* (No. 2018/07). Bruegel Policy Contribution.
98. Slimane, F.B., 2012. *Stock exchange consolidation and return volatility*. Managerial Finance.
99. Torres-Reyna, O., December 2007. *Panel Data Analysis: Fixed and Random Effects using Stata (v. 4.2).* Princeton University.
100. Veil, R. ed., 2017. *European capital markets law*. Bloomsbury Publishing.
101. World Bank Group, 2020. *Capital Markets Development: A Primer for Policymakers*. Report.
102. World federation of exchanges (WFE), 19 August 2019. *The world federation of exchanges publishes H1 2019 market highlights*. Press release, London. https://focus.world-exchanges.org/storage/app/media/statistics/WFE%20H1%202019%20Market%20Highlights%20press%20release%20draft%205%2016.08.2019.pdf

103. World Federation of Exchanges (WFE), August 2020. *First-Half Market Highlights.*

104. Wright, W., November 2014. *Capital Markets Union: be careful what you wish for…* New Financial Journal, Rethinking capital markets. https://newfinancial.org/capital-markets-union-careful-wish/

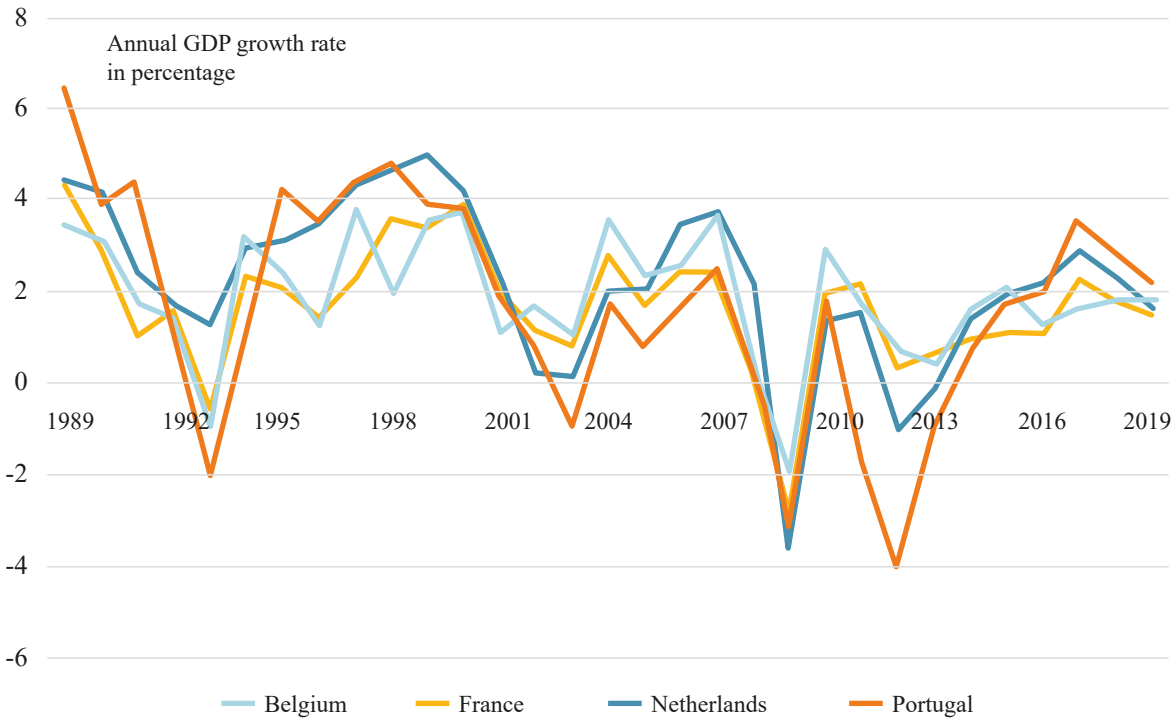
105. Yannirism C.,2017. *Diversified Economic Governance in a Multi-Speed Europe: a Buffer Against Political Fragmentation?* Journal of Contemporary European Research 13(4) pp. 1412-1421.

Databases

- Euronext database
- European Central Bank database
- Gabinete de Estratégia e Estudos (GEE), Ministério da Economia e da Transição Digital. Repùblica Portuguesa database
- International Monetary Fund (IMF) database
- Refinitiv database
- Sabi database
- World Bank database

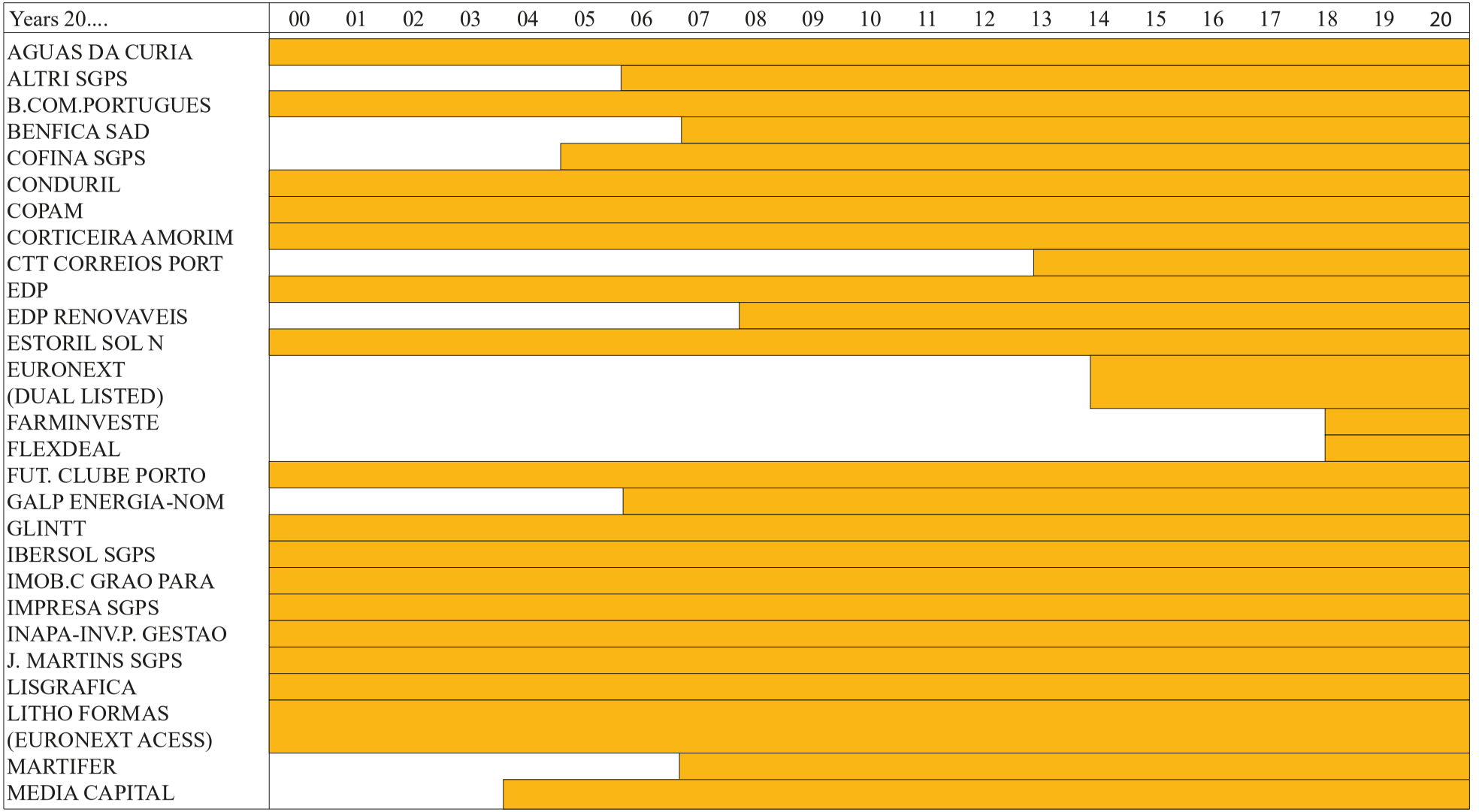
ANNEX I

Analysis of the Annual GDP growth rate in percentage, from 1990 to 2019. Data are taken from the World Bank database.



ANNEX II

Listed companies Euronext-Lisbon at the end of 2020 and related timeline from 2000.
Source: Euronext official website




Years 20....
00
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
MERLIN PROPERTIES
MONUMENTAL RES
(EURONEXT ACESS)
MOTA ENGIL
MULTI 24
(EURONEXT ACESS)
NEXPONOR-SICAFI
NOS, SGPS
NOVABASE SGPS
(EURONEXT ACESS)
OLIMPO REAL ESTATE
(EURONEXT ACESS)
OREY ANTINUES ESC.
PATRIS
PHAROL
RAIZE
RAMADA
REDITUS SGPS
REN
RSR SINGULLAR
(EURONEXT ACESS)
S.CLUBE BRAGA
(EURONEXT ACESS)
SEMPA
SONAE
SONAE IND . SGPS
SONAECOM SGIPS
SONAGII
(EURONEXT ACESS)
SPORTING
TEIXEIRA DUARTE
THE NAVIGATOR
COM
TOYOTA CAETANO
VAA VISTA ALEGRE

ANNEX III

Sample companies with the related information as regard IPO, business sector and small description
Source: Refinitive website

ID	Company	IPO	Business Sector	Small Description
1	CONDURIL CONSTRUTORA DURIENSE SA	02/08/1994	Construction and engineering	Conduril engenharia sa, formerly conduril construtora duriense sa, is a Portugal-based company engaged in the civil engineering industry. The company is involved in the construction of a range of public and private works such as dams, bridges, highways, roads, sanitation, residential and commercial buildings, as well as in the provision of hydraulic works, groundwater, and geotechnical works. Apart from Portugal, the company carries out its activities in such countries as Angola, Mozambique, Botswana, Cape Verde, Spain and Morocco.
2	COPAM COMPANHIA PORTUGUESA DE AMIDOS SA	02/08/1994	Food processing	Copam companhia portuguesa de amidos sa is a Portugal-based company engaged in the manufacture of starch products, using corn as feedstock. The company's portfolio includes such products as starch, glucose syrups, glucose-fructose syrups and dextrose. It also offers various co-products, including corn gluten feed, corn gluten meal and corn germ. The company sells starch products to other industries, including manufacturers of soft drinks, antibiotics, beer, paper, confectionery, corrugated cardboard, oils and animal feed.
3	CORTICEIRA AMORIM SGPS SA	01/08/1994	Forest and wood products	Corticeira amorim sgps sa (corticeira amorim) is a Portugal-based holding company engaged in the cork industry. The company organizes its activities into five business divisions: raw materials, cork stoppers, coverings, cork composites and isolations. In the raw materials division, the company is active in the purchase, storage and initial preparation of cork. The cork stoppers division produces and supplies various types of bottle caps, mainly for the wine industry. The coverings division is active in the production of cork-based laminates. The cork composites and the isolations units produce thermal, acoustic and anti-vibration insulation products, among others. The company and its subsidiaries operate in Portugal, Spain, Tunisia, US, Australia, Germany, China, Italy, Argentina, France and Netherlands, among others. The company is a subsidiary of amorim capital sgps sa.
4	EDP ENERGIAS DE PORTUGAL SA	29/06/1998	Eletric utilities	Edp energias de portugal sa is a Portugal-based utility company. Its segments are long term contracted generation in Iberia, which includes the activity of electricity generation of plants with contractual stability compensation and special regime generation plants in Portugal and

				and supply of electricity in Portugal and Spain, and gas in Spain; regulated networks in Iberia, which includes the activities of electricity distribution in Portugal and Spain, gas distribution in Spain, and last resort supplier; edp renovaveis, which includes power generation activity through renewable energy resources, and edp Brazil, which includes the activities of electricity generation, distribution and supply in brazil. It also operates in related areas, such as engineering, laboratory tests and property management.
5	FUTEBOL CLUBE DO PORTO SAD	01/06/1998	Leasure and recreation	Futebol clube do Porto futebol sad (fc Porto) is a Portugal-based company primarily active in the management of the fc porto soccer team. The fc Porto team plays games at estadio do dragao, which includes a conference centre, leisure facilities, shopping areas and restaurants. Additionally, the company operates teams in basketball, athletics, handball, roller hockey, adaptive sports, snooker and swimming. The company is also involved in the promotion and organization of sports events. Through its subsidiaries, the company is engaged in the commercialization of image rights; sponsorship; merchandising and licensing products branded with the fc Porto's trademark; editing, production and marketing of material for the internet, multimedia and periodicals; management and operation of sports equipment; insurance intermediation; organization and sale of travel and tour packages; ticket and seat reservation, and representation of other travel and tourism agencies.
6	GLINTT GLOBAL INTELLIGENT TECHNOLOGIES SA	01/07/1999	It services and consulting	Glintt global intelligent technologies sa (glintt), formerly glintt - global intelligent technologies sgps sa, is a Portugal-based holding company primarily engaged in the information technology (it) sector. The company divides its business into three main areas: consulting and integration; managed services, and outsourcing. Together with its subsidiaries, glintt provides it services and products. Its portfolio includes electronic payment terminals, equipment for pharmacies, automatic medication dispensers and various types of software, including it solution for pharmacy management, human capital management and financial management, among others. The company operates in Portugal, Spain and Angola. It is a subsidiary of farminveste.
7	IBERSOL SGPS	27/11/1997	Restaurants and bars	Ibersol sgps sa is a Portugal-based company primarily engaged in the operation of restaurants. It is active in Portugal and Spain. The company divides its activities into six business areas: restaurants and delivery; counters; travel; coffee kiosks; catering, and concessions. In the restaurants and delivery area, it is involved in the operation of restaurant chains under brand names of pizza hut, pasta caffe and pizza movil. In the counters area, it operates restaurant chains under banners kfc, o kilo, burger king and pans, as well as the eat-out group brand names. The travel business sector includes the provision of foodservices on highways and airports. The coffee kiosks sector consists of coffee retailers under the brand name delta. In the catering sector, it is active in the preparation of meals. The concessions sector includes the management of concessions for provision of foodservices in number of spots in Portugal, such as serralves museum and casa da musica, among others.

8	IMOBILIARIA CONSTRUTORA GRAO PARA SA	01/01/1972	Hotels, motels and cruise lines	Imobiliaria construtora grao para sa is a Portugal-based company primarily involved in the development and operation of hotels. The company, together with its subsidiaries, is mainly engaged in the development, management, and operation of hotels. Additionally, it is active in the trade of real estate properties. The company operates such hotels as hotel atlantis sintra estoril and aparthotel solferias, as well as the restaurant boteco. It owns architectural and engineering offices, which are active in the development of real estate projects.
9	INAPA INVESTIMENTOS PARTICIPACOES E GESTAO	01/08/1994	Paper products	Inapa investimentos participacoes e gestao sa (inapa) is a Portugal-based holding company mainly engaged in the distribution of paper. The company operates through three business segments. In the paper division it provides various paper products, including coated, offset, digital and carbonless paper, as well as cardboard and envelopes; its portfolio also includes graphic materials, such as paints and chemicals, and office supplies. In the packaging division is active in the distribution of packaging products, including boxes, tapes, ribbons, bags and stickers, as well as in the provision of customized packaging services. In the visual communication it offers products and services for large format digital printing, such as printers, toners, software and technical assistance. Inapa operates in Germany, France, Switzerland, Spain, Portugal, Belgium, Angola, Turkey and Luxembourg.
10	IMPRESA SOCIEDADE GESTORA DE PARTICIPACOES SOCIAIS SA	04/06/2000	Broadcasting	Impresa sociedade gestora de participacoes sociais sa (impresa sgps sa) is a Portugal-based holding company involved in the media industry, with interests covering television broadcasting and newspaper publishing, among others. The company divides its business into three main segments: television segment, which includes video production and operation of private television channels in Portugal, such as sic, sic noticias, sic radical and sic internacional; publishing segment, which is active in the publishing of newspapers, including expresso, and segment others, which comprises activities in the real estate sector, multimedia solutions and geo-location technological solutions. The company operates an online platform, impresa media criativa, that gathers all of its creative outlets.
11	JERONIMO MARTINS SGPS SA	01/01/1989	Food retail & distribution	Jeronimo martins sgps sa is a Portugal-based company engaged in the food retail sector. The company's activities are divided into three business segments: Portugal retail, which comprises operation of pingo doce supermarkets; Portugal cash & carry, which includes the wholesale business unit recheio, and Poland retail, which operates a network of supermarkets under the biedronka brand name. In addition, the company is involved in the operation of drugstores under the hebe banner and pharmacies under the apteka na zdrowie brand name. The company also manages a network of supermarkets under the ara brand name in Colombia. The company is a subsidiary of sociedade francisco manuel dos santos bv.
12	LISGRAFICA IMPRESSAO E ARTES GRAFICAS SA	24/10/1994	Commercial printing services	Lisgrafica - impressao e artes graficas sa (lisgrafica) is a Portugal-based company primarily engaged in the provision of printing services. The company is involved in the printing of magazines, newspapers, catalogues, brochures, newsletters and phonebooks, among others.

13	LITHO FORMAS PORTUGUESA IMPRESSOS CONTINUOS E MULTIPLOS SA (EURONEXT ACCESS)	01/08/1994	Commercial printing services	Litho formas sa, formerly litho formas portuguesa impressos continuos e multiplos sa, is a Portugal-based company primarily engaged in the production of customized stationery. The company is active in the graphic arts industry by providing printing services. It offers various customized products for other companies, such as pre-printed paper sheets, envelopes, business cards, greeting cards, posters, flyers, bank checks, catalogues, pre-printed paper rolls, equity securities, show tickets, transport tickets, labels, holographic applications, plastic cards, boarding passes and digital tickets, among others.
14	MOTA ENGIL SA	31/03/1995	Construction & engineering	Mota engil sgps sa is a Portugal-based company primarily engaged in the construction industry. The company divides its business into three main segments: engineering and construction; environment and services, and transport concessions. In the engineering and construction division, it carries out various engineering works, including bridges, railways, ports, airports, dams, highways, roads, canals and tunnels, among others. The environment and services division is involved in the management of solid urban and industrial waste; rehabilitation of pipelines and maintenance of buildings, and landscape architecture services, among others. The transport concessions division, operated by the company's subsidiary ascendi group sgps, is active in the management of motorways and expressways. In addition, the company focuses on activities in the tourism sector.
15	NOS SGPS	15/11/1999	Integrated telecommunications services	Nos sgps sa, known as zon optimus sgps sa, is a Portugal-based company engaged in the broadcasting and telecommunication industry. It was created as a result of a merger between zon multimedia servicos de telecomunicacoes e multimedia sgps sa (zon) and optimus - sgps sa (optimus). The company is active in the distribution of cable and satellite television; the production of movies, series, sport and children's channels, and management of the advertising space on pay television (tv) channels and in cinemas. It is also involved in the provision of a range of mobile and wired communications services to residential and corporate customers, including voice, data, television (tv) and roaming services. Additionally, it operates in the audio-visual sector, which includes video production and sale, cinema distribution and exhibition, and the acquisition and negotiation of pay tv and video-on-demand rights. The company is a subsidiary of zopt sgps sa.
16	NOVABASE SGPS SA	03/07/2000	It services & consulting	Novabase sgps sa is a Portugal-based company active in the provision of information technology (it) solutions. The company provides services for a range of sectors, including finance, public administration, healthcare, energy, and utilities, as well as telecommunications. The company organizes its activities into two business segments: business solutions and venture capital. The business solutions division provides it technology, management, and system design. The venture capital division identifies and develops Portuguese information and communications technology (ict) business projects, which are in early development or expanding and have potential synergies with the company. In addition, it offers it contracting, which includes staffing services for it projects.

17	PHAROL SGPS SA	01/06/1995	Integrated telecommunications services	Pharol, sgps s.a., formerly Portugal telecom, sgps, s.a., is an open company. Pharol's assets include oi, s.a., debt securities of rio forte investments s.a. (rio forte) and the call option of oi. The company manages its direct and indirect interest in oi, s.a. The company's subsidiaries include bratel bv, bratel brasil, s.a., ptb2, s.a. And pharol brasil.
18	SEMAPA SOCIEDADE DE INVESTIMENTO E GESTAO SGPS SA	26/07/1995	Paper products	Semapa sociedade de investimento e gestao sgps sa is a portugal-based holding company engaged in three business segments: paper and pulp; cement and derivatives, and environment. The paper and pulp business segment, operated by the subsidiary portucel sa, is engaged in the production and sale of cellulose pulp and paper, as well as in the forestry and agricultural production. The cement and derivatives business segment, operated by the subsidiary secil - companhia geral de cal e cimento sa, is engaged in the manufacture and sale of cement, ready-mix concrete, dry pre-prepared mortars, precast concrete, and hydraulic lime. The environment business segment, operated by the subsidiary etsa - investimentos sgps sa, is involved in the collection, transport, storage, processing, and recovery of animal by-products, as well as in the collection and recycling of used cooking oil. The company, through its subsidiaries, operates in Tunisia, Spain, Angola, Poland and France, among others.
19	SONAE SGPS SA	13/01/1994	Food retail & distribution	Sonae sgps sa (sonae) is a portugal-based holding company primarily engaged in the retail trade of food. The company divides its business into six segments: sonae mc, which is active in the food retail mainly through hypermarkets, supermarkets and franchised local food stores; sonae sierra, which develops and manages shopping malls; sonae sr, which includes specialized retail stores, such as electronics, sports goods and fashion shops; sonae rp, which is involved in the real estate sector; sonaecom, which provides integrated telecommunication services, and the investment management, which support the company’s business through the assets portfolio management. The company's portfolio includes continente, modalfa, worten, losan and zippy brands, among others. The company operates in approximately 66 countries, including Portugal, Spain, Greece, Germany, Italy, Turkey, and Brazil, among others.
20	SONAECOM SGPS SA	31/05/2000	Wireless telecommunications services	Sonaecom sgps sa is a portugal-based company primarily engaged in the telecommunication industry. The company divides its business into two main units: optimus, which is an integrated telecommunications operator, and the unit of software and systems information services (ssi). Additionally, the company is active in the online & media sector, which includes the daily newspaper publico and the online auction website miau.pt. Through its subsidiary optimus - comunicacoes sa, the company offers a range of mobile and wired communications services to residential and corporate customers in portugal, including voice, data, television (tv) and roaming services, as well as wholesale services to third parties. Through the subsidiaries, the company provides a range of products and services, such as revenue assurance software, multi-brand information technology (it) solutions, management of corporate software licensing contracts, cyber security and data centres services, among others.

21	SONAGI SGPS	02/08/1994	Real estate rental, development & operations	Sonagi sgps sa is a Portugal-based company involved in the real estate sector. Together with its subsidiaries, the company is primarily active in the development, leasing and management of commercial properties, office buildings, lands and residential real estate properties in Portugal. The company's portfolio includes various properties, such as semapa office building, joaquim antoni aguiar office building, offices and warehouses in carnaxide, apartments d francisco m de melo and land in alenquer, among others.
22	VAA VISTA ALEGRE ATLANTIS SGPS SA	06/06/1995	Appliances, tools & housewares	Vaa vista alegre atlantis sgps sa is a Portugal-based holding company primarily engaged in the p oven dishes, crystal and manual glass. The company has a number of direct subsidiaries, inclu in the production and sale of porcelain, crystal, oven dishes, earthenware and glass product distribution and retail of crystal and ceramic products in Spain; va grupo-vista alegre participa estate properties; faiancas da capoa-industria de ceramica sa, which manages the factory in cerexport-ceramica de exportacao sa, which manages the factory in esgueira, portugal, where offers long term rental of plates, cutlery and utensils to the hotel industry.

ANNEX IV

Summary of the sample, sub-samples, variables and assumptions of the conducted empirical analysis of Euronext-Lisbon

SUMPLE			
ID	22 companies		
T	31st December 2001- 31st December 2019	19 Years	
Granularity of data	Yearly - calculated on 31st December		Dimension of the panel: 418xK
SUB-SAMPLE 1			
Time period	31st December 2001 - 31st December 2019	19 years	Dimension: 418xK
SUBSAMPLE 2			
Time period	31st December 2001 - 31st December 2009	9 years	Dimension 198xK
DEPENDENT VARIABLE			
$T_{i,t}$	Liquidity turnover of company i at time t	Number of shares traded on the 31st of December/ volume traded on 31st of December. Measure of liquidity.	
INDEPENDENT VARIABLES			
$D_{i,t}^{1}$	Merger event Time variant	take 0 before the event (September 2002) and 1 after the event. Since data are yearly, it will take zero only in the first available data (31st December 2001)	
D_{i}^{B}	Big Time invariant	We consider a firm big if its market cap lies in the top 18.18% across the sample's companies before the merger event (September 2020). We use market cap as proxy of size	Market cap = share outstanding 31st December* price 31st December.
D_{i}^{S}	Small Time invariant	We consider a firm small if its market cap lies in the bottom 18.18% across the sample's companies before the merger event (September 2020). We use market cap as proxy of size.	
D_{i}^{F}	Foreign exposure How much the company is known outside its national border, and so have international relationships.	take value 1 if before the merger (September 2002) the sample's firm had external revenues, 0 otherwise. We use external revenues as proxy of foreign exposure.	External revenues are defined as revenues acquired by external consumers. They exclude intersegment revenues.

	Time invariant		
$X_{i,t}^{MC}$	Market cap Time variant	Market cap of firm i at time t	
$X_{i,t}^{ER}$	External revenues Time variant	External revenues of firm i at time t Used as proxy of foreign exposure	
$X_{i,t}^{EBITDA}$	EBITDA Time variant	EBITDA of firm i at time t. It is used as proxy for productivity	Earnings before interests, taxes, depreciation, and amortization
W_t	Control Variable	Macroeconomic indicator of liquidity, used for controlling the effects of economic cycles that impact the liquidity of the firms, but are not related with the merger. We use GDP per capita with current prices of Portugal as proxy of the economic cycles.	Source IMF
PROBLEMS, SOLUTIONS AND ASSUMTIONS			
Data are annual, and taken at the 31st of December, since some of them come from Cash flows and balance sheet of the companies provided by Refinitiv, and are published at the end of the year.		To not mix data, we use only yearly data. As regard liquidity, market cap they are calculated only at the 31st of December, since in reporting prices and volumes of this companies, Refinitiv present many missing values, and is not possible as consequence to create yearly representative data. On the contrary data on the 31st of December are always present.	
The availability of data in Refinitiv is limited to 20 years, so is not possible for to create a dataset in which is present a balance between the years before and after the merger event		To check the impact of this effect on our results, the same regression is performed also with a short time dataset 2001-2009 (sub-sample 2)	
Some data are missing as regard external revenues, The 21% over the full sample present a missing value.		To not work with unbalanced panel data, assume that if external revenues are not reported this mean that they were not present that year, and so take value zero.	

ANNEX V

Analysed regressions' specifications for both the sub-samples

REGRESSION (1)
$$Y_{i,t} = \alpha_i + \beta_1 * X^1_{i,t} + \gamma * Z_t + \epsilon_{i,t}$$ Regression of liquidity turnover over: - Merger event - Control variable
REGRESSION (2)
$$Y_{i,t} = \alpha_i + \beta_1 * X^1_{i,t} + \beta_2 * X^2_i * X^1_{i,t} + \beta_3 * X^3_i * X^1_{i,t} + \gamma * Z_t + \epsilon_{i,t}$$ Regression of liquidity turnover over: - Merger Event - Big* Merger event - Small*Merger event - Control variable
REGRESSION (3)
$$Y_{i,t} = \alpha_i + \beta_1 * X^1_{i,t} + \beta_2 * X^2_i * X^1_{i,t} + \beta_3 * X^3_i * X^1_{i,t} + \beta_4 * X^4_i * X^1_{i,t} + \gamma * Z_t + \epsilon_{i,t}$$ Regression of liquidity turnover over: - Merger event - Big*Merger event - Small*Merger event - Foreign exposure *Merger event - Control variable

REGRESSION (4)

$$Y_{i,t} = \alpha_i + \beta_1 * X_{i,t}^1 + \beta_2 * X_i^4 * X_{i,t}^1 + \vartheta_1 * X_i^2 * X_i^4 * X_{i,t}^1 + \gamma * Z_t + \epsilon_{i,t}$$

Regression of liquidity turnover over:
- Merger event
- Foreign exposure* Merger event
- Big*Foreign exposure*Merger event
- Control variable

REGRESSION (5)

$$Y_{i,t} = \alpha_i + \beta_1 * X_{i,t}^1 + \beta_2 * X_i^2 * X_{i,t}^1 + \beta_3 * X_i^3 * X_{i,t}^1 + \beta_4 * X_{i,t}^7 * X_{i,t}^1 + \vartheta_1 * X_i^2 * X_{i,t}^7 * X_{i,t}^1 + \vartheta_2 * X_i^3 * X_{i,t}^7 * X_{i,t}^1 + \gamma * Z_t + \epsilon_{i,t}$$

Regression of liquidity turnover over:
- Merger event
- Big*Merger event
- Small*Merger event
- External revenues*Merger event
- Big*External revenues*Merger event
- Small*External revenues*Merger event
- Control variable

REGRESSION (6)

$$Y_{i,t} = \alpha_i + \beta_1 * X_{i,t}^1 + \beta_2 * X_i^4 * X_{i,t}^1 + \beta_4 * X_{i,t}^7 * X_{i,t}^1 + \vartheta_1 * X_i^2 * X_i^4 * X_{i,t}^1 + \gamma * Z_t + \epsilon_{i,t}$$

Regression of liquidity turnover over:
- Merger event
- Foreign exposure* Merger event
- EBITDA*Merger event
- Big*Foreign exposure*Merger event
- Control variable

REGRESSION (7)

$$Y_{i,t} = \alpha_i + \beta_1 * X_{i,t}^1 + \beta_2 * X_{i,t}^5 * X_{i,t}^1 + \beta_3 * X_{i,t}^6 * X_{i,t}^1 + \beta_4 * X_{i,t}^7 * X_{i,t}^1 + \gamma * Z_t + \epsilon_{i,t}$$

Regression of liquidity turnover over:
- Merger event
- Market cap*Merger event
- External revenues*Merger event
- EBITDA*Merger event
- Control variable

REGRESSION (8)

$$Y_{i,t} = \alpha_i + \beta_1 * X_{i,t}^1 + \beta_2 * X_{i,t}^5 * X_{i,t}^1 + \beta_3 * X_{i,t}^6 * X_{i,t}^1 + \beta_4 * X_{i,t}^7 * X_{i,t}^1 + \vartheta_1 * X_{i,t}^5 * X_{i,t}^6 * X_{i,t}^7 * X_{i,t}^1 + \gamma * Z_t + \epsilon_{i,t}$$

Regression of liquidity turnover over:
- Merger event
- Market cap*Merger event
- External revenues*Merger event
- EBITDA*Merger event
- Market cap*External revenues*EBITDA*Merger event
- Control variable

REGRESSION (9)

$$Y_{i,t} = \alpha_i + \beta_1 * X_{i,t}^1 + \vartheta_1 * X_{i,t}^5 * X_{i,t}^6 * X_{i,t}^7 * X_{i,t}^1 + \gamma * Z_t + \epsilon_{i,t}$$

Regression of liquidity turnover over:
- Merger event
- Market cap*External revenues*EBITDA*Merger event
- Control variable

SUMMARY

Capital Markets Union (CMU) is an interesting and very complex project in the evolution of the European Union. The aim of the CMU is to get resources, in form of investments and savings, flowing across the EU to benefit consumers, investors and companies, regardless to whatever they are located. The importance of the project is stressed today by the current Covid-19 crises and the need of resources to restructure in Europe after the pandemic. Nevertheless, the complexity of the project brings its evolution to proceed by steps.

The thesis analyses CMU under the prospective of equity markets, looking at their historical evolution, integration and degree of harmonisation, taking the mergers in the Euronext Group as prototype for an empirical investigation. The Portuguese stock market is analysed, looking at the integration of Bolsa de Valores de Lisboa e Porto (BVLP)ian international and harmonised system of exchanges as the Euronext Group. Starting from the work of Ulf Nielsson[1], an econometric analysis has been performed to assess the impact of the merger on the liquidity of the Portuguese companies taking into consideration by a panel data analysis the different firms' characteristic, such as size, foreign exposure, and productivity. Even if the results on the Portuguese market are mixed, the methodological framework could be applied to future research, such as the merger of Italian stock market in Euronext.

Capital Markets Union project

The first chapter analyses the Capital Markets Union, looking at its historical background and at the theoretical benefits and risks. The project for the creation of the Capital Markets Union started with the Junker presidency of the European Commission in 2015[2]. The EU searched for years a balanced combination between Banking Union and CMU, that working simultaneously, can guarantee a stable, diversified, efficient and developed European Union. The diversification of funding is also a well-known topic in financial literature, looking in particular at the work of Pagano et al.[3], on the banking sector concentration in Europe and the work of Langfield and Pagano[4], on the link between the banking concentration in Europe and the financial growth and systematic risk relationship.

[1] Nielsson, U., 2009. Stock exchange merger and liquidity: The case of Euronext. Journal of Financial Markets, 12(2), pp. 229-267.

[2] European Commission, September 2015. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Action Plan on Building a Capital Markets Union. SWD (2015) 183 final, SWD (2015) 184 final.

[3] Pagano, M., S.Langfield, V. Acharya, A.Boot, M. Brunnermeier, C. Buch, M. Hellwig, A. Sapir, I. Van den Burg, 2014. Is Europe overbanked? Report 4, European systematic risk board's advisory scientific committee.

[4] Langfield, S. and Pagano, M., 2016. Bank bias in Europe: effects on systemic risk and growth. Economic Policy, 31(85), pp. 51-106.

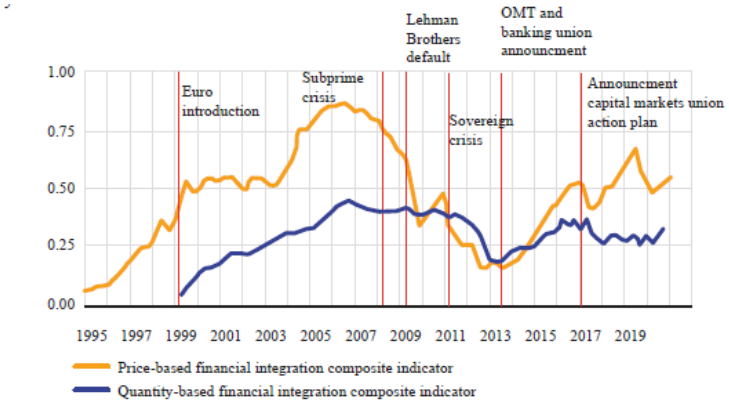
1

The creation of CMU revealed to be a complex project dealing with a broad number of issues, going beyond the simple creation of a harmonized system of capital markets, such as: supervision, taxation, market's structure, insolvency law, development of national markets, new technologies employment and competitiveness across the world. From 2015 several steps for the creation CMU were taken, and the new CMU action plan had been published in June 2020 to booster Europe towards a further unification and recovery, both as single EU body and as single economy from the recent pandemic. The present situation requests today even more then before an efficient capital market, able to convey financial resources to companies, to allow the recovery of Europe after the Covid-19 pandemic; and to foster a green and digital transformation of the EU[5]. As the European says: "*The CMU aims to put capital markets at the service of people, offering them both sustainable investment opportunities and strong investor protection*[6]."

In the first chapter an overlook is given of the state of the art of different financing sources in Europe, and the degree of integration in the field of capital markets. European Union reveals to be strongly linked to the banking system as primary funding source, and to be characterized by a remarkably high level of capital markets fragmentation and a high degree of volatility in integration.

The ECB indicator[7] of the financial integration of the Euro countries (Figure 1) shows that after the Euro introduction the level of integration across markets increased consistently, but due to the financial crisis the level of integration decreased between 2007 and 2012. Even if it showed a renewed sprint between 2013 and 2019, it is still below the level of 2005.

Figure 1: Price-based and quantity-based composite indicators of financial integration. The indicators are bounded between zero (full fragmentation) and one (full integration).



Source 1: European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area. p.12.

[5] European Commission, 2020. What is the capital markets union? General information on the objectives of the capital markets union. EU commission website.

[6] European Commission, 24 September 2020. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A capital Markets Union for people and business-new action plan. COM (2020) 590 final.

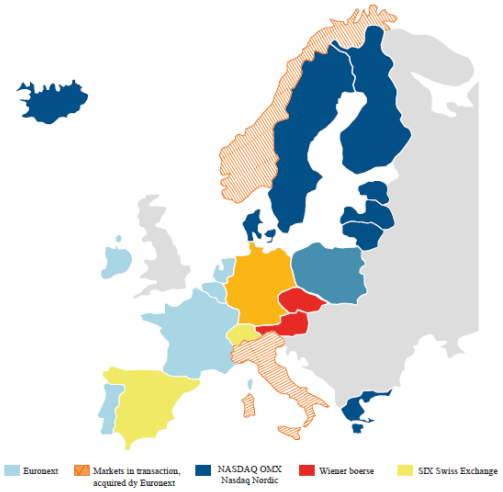
[7] European Central Bank (ECB), March 2020. Financial Integration and Structure in the Euro Area.

The evolution of stock exchanges and their role in the economic environment

Chapter two explores the role of exchanges in the present economic environment and look at its evolution. In the 1980's new technologies and inventions revolutionise financial world: physical presence in the exchanges was replaced by one click of the computer keyboard and speed of the information circulation increased at unimaginable levels. Globalisation delivered an easier approach to foreign markets, creation of more uniform portfolios across world's investors and increase of the financial possibilities under economy of scale and scope. Also, the process of demutualisation of exchanges plays an important role in their evolution. If at the beginning exchanges assumed the structure of a not-for-profit organisation, the new process of transformation of the new millennium, brought exchanges to think to different governance structures, different to mutual or cooperative classical models[8].

An important phenomena appering on international scale is also the increase of mergers and acquisitions of stock exchanges. The increase of competition across exchanges in the world and the need of diversification broght many exchanges not only to grow in dimension in order to get an higher market share, but also to operate in different countries aquiring other competitors. Interesting for the future discussion on the CMU and the empirical investigation is the analysis of the relevance of some groups of exchanges in Europe. As shown in Figure 2, the European market of exchanges is characterised by the presence of big groups, conglomerations of national exchanges: the figure stresses the importance played by Euronext in the European context, defining Euronext as one of the referential exchange group for Europe.

Figure 2: Most relevant exchanges in Europe at the end of 2020.



Source 2: Ambromobiliare, December 2020.

[8] International Organization of Securities Commissions (IOSCO), December 2000. Discussion paper on stock exchange demutualization.

Euronext and Euronext-Lisbon

In chapter three an analysis of Euronext and Euronext-Lisbon is given. Although the Capital Markets Union includes various aspects of harmonisation of capitals, the thesis concentrates the further investigations only on the equity markets. Euronext represents in this sense the first experiment for the creation of a functional, efficient, and harmonized exchange for capitals, able to foster the recovery of Europe and support also the banking system. Euronext, with a market capitalization of Euro 5085.5 million at the end of 2019, characterizes as a central exchange in EU, having the possibility to work in seven different market across Europe. The present structure of Euronext started with its creation in 2000 with the first groups of markets[9], and then expanded in Portugal, Dublin, Oslo and Italy.

Euronext does not characterize only for its dimensions, but especially for its governance since it represents a classical example of double entity: an exchange and a public listed company. Its evolution and harmonization of the different national exchanges composing the group, characterizes Euronext as a candidate for an empirical test on the consequences of the creation of the CMU, as harmonised structure of stock exchanges. On the other hand, it is important to take in consideration that: although the presence of a European surveillance, conducted by the European Security and Markets Authority (ESMA), still National Competent Authorities (NCAs) are in charge of the national supervision of the exchanges. The structure and regulations in the different Euronext exchanges are similar, and contacts between them are eased in respect to contacts between different groups of exchanges. The participation to Euronext Group allows the single national markets to keep their borders but harmonize across them and to acquire a more international visibility. It will in fact be easier for an investor, who operates now in one exchange inside the group, to access and have information on the other companies traded in a different branch of it. At the same time, for companies, can be easier to afford a multi-listing procedure since they already know the functioning and regulation of the exchange. This can be the first step to create a unified exchange with only one list of securities across countries, but it can also represent the final goal in the creation of a harmonized exchange group for the European Union that maintains singular national characteristics.

In this dissertation the focus is also on the analysis of Euronext Lisbon, and how the entrance in a multinational exchange scenario affected the Portuguese Capital Market. First a small historical excursus about the Portuguese Stock Exchanges is delivered and then a small snapshot of the Portuguese economy today, focusing of the composition of firms and their source of financing is presented.

[9] France, Belgium and Netherlands.

Officially the Lisbon Stock Exchange was founded in 1769, but an archaic form and a quite visionary form of exchange in Portugal and in Lisbon was present since the 14th and 15th century.

In 2000 Porto and Lisbon market exchanges joined becoming the Bolsa de Valores de Lisboa e Porto (BVLP). In 2002 the Bolsa de Valores de Lisboa e Porto was then acquired by the Euronext Group and as consequence transformed in Euronext-Lisbon.

The Portuguese capital market characterises for the scarcity of IPO and small companies, as underlined by the published study of the Coimbra University in 2017[10]. In the capital market, as reported by the OECD analysis in 2018[11], the liquidity turnover ratio in Euronext-Lisbon was lower than in other markets of the group: 52% in Paris, 64% in Amsterdam, 41% in Lisbon, and even lower in comparison with markets as Germany (92%), Japan (119%) and US (108%) that are characterized by a relevant and higher liquidity.

From an economic point of view the Portuguese economy is characterized by SMEs that operate in the Portuguese economy, not without a certain degree of difficulty. Following an OECD analysis, in 2017 SMEs employed 72.4% of Portuguese workers, counting for the 99.7% of the total number of firms in Portugal, and generating the 58.1% of the non-financial business turnover in the country[12] .

Empirical analysis

In the fourth chapter an empirical analysis of the effects that the merger between Bolsa de Valores de Lisboa e Porto and Euronext had on the Portuguese market is conducted, with a particular attention on the heterogeneity of the consequences across different listed Portuguese companies. The final goal is the examination of the stock liquidity of some Portuguese companies, looking if the merger had significantly improved the liquidity turnover of firms, analysing if some firms' characteristics make the creation of a harmonized and international exchange more profitable for them. The investigation is taken on Euronext as prototype of the Capital Markets Union.

The Analysis of the markets starts by some descriptive statistics, followed by a correlation analysis on a period of 19 years, from 2001 to 2019. Data are taken from Refinitiv, ECB databases, World Bank databases, International Monetary Fund databases, Euronext databases, and STATA.

Descriptive statistics on the evolution in the number of domestic listed companies[13] in Netherlands Belgium, France and Portugal[14] show a decrease in the number of listed domestic companies for all

[10] Mata, M.E., da Costa, J.R. and Justino, D., 2017. The Lisbon stock exchange in the twentieth century. Imprensa da Universidade de Coimbra/Coimbra University Press.

[11] OECD, 2020. Understanding Delisting from the Portuguese Stock Market. OECD Capital Market Series, Paris.

[12] OECD, 2020. Portugal in Financing SMEs and Entrepreneurs 2020: An OECD Scoreboard. OECD Publishing, Paris.

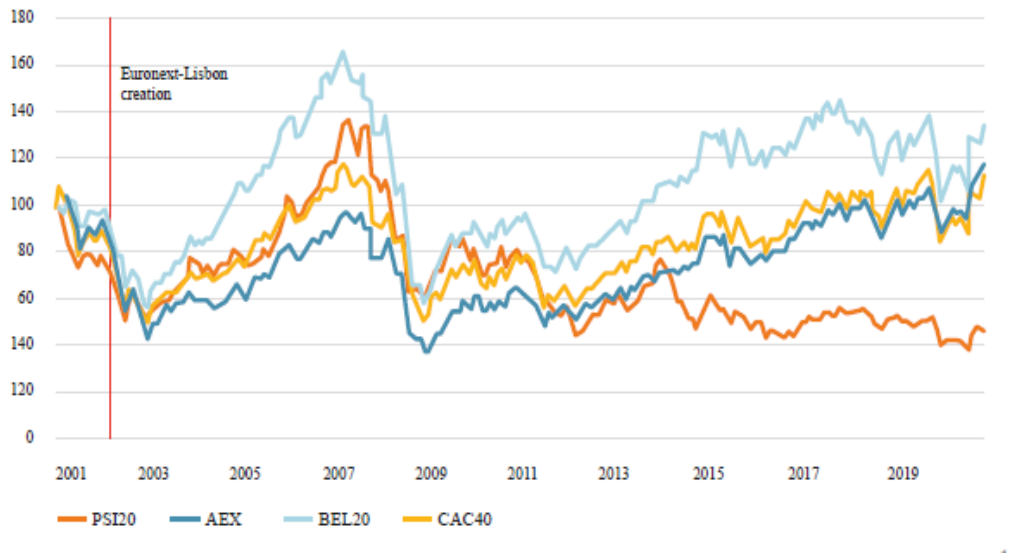
[13] Listed domestic companies, including foreign companies which are exclusively listed, are those which have shares listed on an exchange at the end of the year. Investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies, such as holding companies and investment companies, regardless of their legal status, are excluded. A company with several classes of shares is counted once. Only companies admitted to listing on the exchange are included.

[14] Data are taken from the World Bank database, on annual base, for the period 1990-2018.

exchanges form early 2000, especially for Portugal which is the country with the lower number of listed companies: on the 31st of December 2020, 54 companies are listed in the Euronext-Lisbon[15]. In addition, looking at data from ECB[16] on equity market capitalisation[17], Portugal classifies as the lower country among Euronext Group as regard market capitalization; Belgium and Netherlands share similar characteristics and France experiences the higher market capitalisation.

A first empirical analysis is conducted on some dynamics of Euronext and domestic markets, testing for correlation in the market indexes (AEX for Netherlands, CAC40 for France, BEL20 for Belgium, and PSI20 for Portugal) in a pre-merger versus post-merger scenario. As suggested in Figure 3, all indexes share a common dynamic, except for Portugal, that, after 2013, seems a stand-alone country. This is confirmed by the correlation analysis for the period 2000-2021: Portugal reveals to share an extremely low correlation with the other markets in the Group (France, Belgium and Netherlands) that, on the contrary, revel to share a high degree of correlation among them[18].

Figure 3: Monthly closing price of domestic equity market indexes, (8th of March 2001=100)



Source 3: ECB

A second correlation analysis with a different time frame, from the 31st of January 2002 to 31st January 2011, was performed to test if the results change in the immediate afterwards of the creation of Euronext-Lisbon, and if they were subject to the influence of some macroeconomic events as the Portuguese crises. In this case the correlation between all the domestic equity markets is extremely

[15] Comprehending both companies traded on Euronext section for highly capitalized firms and Euronext Access section
[16] Data provided by the ECB, on an annual base from the 31st of December 2006 to the 31st of December 2018.
[17] Market capitalization of listed companies as domestic equities and exclusive foreign listings.
[18] The correlation is: 0.8204 between Belgium and Netherlands, 0.938 for France-Netherlands, 0.9346 for France-Belgium; and only 0.0277 for Portugal-Netherlands, 0.2855 for Portugal-Belgium and 0.2462 for Portugal-France.

high for all the couples, also for the Portuguese market, showing that the low correlation in 2000-2021 period could be explained by the change of the economic environment for Portugal economy.
Starting from the job of Ulf Nielsson[19], an econometric analysis has been performed to evaluate the impact of the creation of Euronext-Lisbon on the liquidity of different companies in the Portuguese equity market, by taking in consideration the different firms' characteristics, such as size, foreign exposure and productivity. Ulf Nielsson analysed the effect of the creation of Euronext looking at the individual characteristics of the firms, finding a positive relationship between the ex-post liquidity of companies and their size and foreign exposure for four different markets (Belgium, France, Netherlands, Portugal) from 1996 to 2006. The empirical analysis starts from the Nielsson's work, but with some differences: the use of a different time frame of data, from 2001 to 2019; the focus on the Portuguese market; and the method for the creation of variables. Moreover, Nielsson looked at the liquidity's responses of companies on the creation of Euronext distinguishing for companies' size and foreign exposure. On the contrary, this analysis looks at size, foreign exposure, and profitability, focusing on the firm's liquidity[20] in response to the creation of Euronext-Lisbon.
Firm's liquidity has been taken into consideration since stocks 'liquidity directly affects companies' cost of capital, market efficiency and the increase in the liquidity of a market represents an important mechanism to attract investors and companies. Many studies were conducted on the importance of liquidity and markets: Amihud and Mendelson[21] in 1986 investigated the role played by liquidity in capital assets pricing[22];. Padilla and Pagano[23] in 2005 investigated the consequences of the harmonisation of markets in the Euronext Group, looking at the integration of the equity markets of France, Netherlands, Belgium and Portugal between September 2000 and November 2003[24]; Arnold, Hersch, Mulherin and Netter[25] analysed the US regional stock mergers and liquidity, looking at the change in the competition levels of order flow at the change of the structure of competition between them from 1945 to 1961, and the consequences on the bid-ask spreads[26].

[19] Nielsson, U., 2009. Stock exchange merger and liquidity: The case of Euronext. Journal of Financial Markets, 12(2), pp. 229-267.
[20] Liquidity turnover
[21] Amihud, Y. and Mendelson, H., 1986. Liquidity and stock returns. Financial Analysts Journal, 42(3), pp. 43-48.
[22] The authors looked at the relationship between the bid-ask spreads and securities' returns, showing that the spread is an important factor in the creation of securities returns and demonstrating how the more illiquid stocks in a market can rise a 50% extra value if their liquidity can reach the levels of the most liquid stocks.
[23] Pagano, M. and Padilla, A., 2005. Gains from stock exchange integration: the Euronext evidence. Centre for Economic Policy Research Working Paper.
[24] The authors analysed the cost savings produced by the integration, and the effects of the merger on liquidity, finding a decrease in costs and an increase in the liquidity of companies.
[25] Arnold, T., Hersch, P., Mulherin, J.H. and Netter, J., 1999. Merging markets. The Journal of finance, 54(3), pp.1083-1107.
[26] finding that mergers of exchanges attract market shares and deliver narrower bid-ask spreads.

The econometric analysis performed is based on data on equity prices, market cap and financial statements taken from Refinitiv; data on the GDP per capita of Portugal provided by the IMF, and information about the IPO and life of the involved companies delivered by Euronext[27].

All data in the analysis are taken on annual base. Since many companies disappeared, delisted, or exit from the market, only 22 listed companies in Euronext Lisbon are taken in consideration, since they are the only one able to cover all the years (from December 2001 to December 2019[28]). The studied event, merger of Euronext-Lisbon, is in September 2002, but since the sample is annual, with data taken on the 31st of December, we considered as event study exactly this last date.

From the sample two analysis on different periods were performed to cover some issues related with the stability of results: first on the entire sample of 19 years[29] and later to a smaller sample of 9 years from 2001 to 2009[30]. As proxy of liquidity the stock liquidity turnover[31] was used (the dependent variable) changing both across time and across individuals ($T_{i,t}$). The merger event is captured by a dummy variable ($D_{i,t}^{1}$) taking value zero before the event study and one after the event.

Market capitalization[32] is taken as proxy for the size of the company; external revenues[33] are taken as proxy of foreign exposure of the company; and EBITDA is taken as proxy of productivity. In the case of external revenues some data are missing: the 21% of observation over a sample of 418 are not present. To avoid an unbalanced panel data sample, the assumption of not external revenues in case of missing data is taken[34]. A general regression can be expressed as following:

$$T_{i,t} = \alpha_i + \beta_1 D_{i,t}^{1} + \beta_2 SIZE * D_{i,t}^{1} + \beta_3 FOREIGN\_EXPOSURE * D_{i,t}^{1} + \beta_4 PRODUCTIVITY * D_{i,t}^{1} + \beta_5 SIZE * FOREIGN\_EXPOSURE * PRODUCTIVITY * D_{i,t}^{1} + \gamma * W_t + \epsilon_{i,t}$$

The impact of the merger on the turnover is measured using a dummy variable ($D_{i,t}^{1}$)[35]. The coefficient β_1 captures the cumulative effect of the merger event on the liquidity turnover of each company. To capture the heterogeneity in the response of different firms to the merger we include in the regression the different firms' characteristics that, interacting with the dummy variable, can detect the heterogeneity of the firms' responses according to their individual characteristics, then expressed in βn.

[27] All the information form this last two databases are publicly available in their related official website.
[28] Due to elimination of old data from Refinitiv, data older than 20 years are no longer available.
[29] 31st December 2001 - 31st December 2019, 418xK observations
[30] Sub-sample: 31st December 2001 - 31st December 2009, 198xK observations
[31] Liquidity turnover is calculated as the number of shares traded on the 31st of December divided for volume traded on 31st of December, capturing the number of trading of a stock in the market.
[32] Market capitalization is calculated as number of shares outstanding on the 31st of December for the price of the share on the 31st of December.
[33] External revenues defined as revenues acquired by external consumers, not including intersegment revenues.
[34] In case of missing data, a zero in present instead of a missing value.
[35] These variables are always a time-individual-varying variables.

The firms' characteristics are moreover jointly interacted (cross-effects), in order to find if firms with multiple characteristics will acquire an extra benefit in comparison with firms with only one characteristic. In the regression a control variable is present (W_t), allowing to clean the results of the regression. Practically we insert a macroeconomic indicator (GDP per capita of Portugal[36]) to control for the effect of the economic cycles affecting the liquidity of the companies but that have no reference with the event study.

The regression is estimated using both the fixed-effect model[37] (FE) and the random-effect model[38] (RE), and subsequently, after the Hausman test, the more appropriate model is adopted. The Hausman test sets as null hypothesis that the individuals' errors are not correlated with the regressor; this means that accepting the null hypothesis the fixed effect model is preferred[39]. Data are moreover tested for heteroskedasticity using the Breusch-Pagan LM test[40].

For the construction of the independent variables two ways were explored to capture the size of companies, their foreign exposure, and their productivity. One method follows the same system used by Ulf Nielsson in his paper, based on individual varying variables but time-fixed, and the another is based on time-individual-varying variables taken as historical series.

In the first case, a dummy variable[41] for big firms, a dummy variable for small firms, and a dummy variable for firms having an international exposure were created: a firm is considered big if its market cap before the merger event lies in the top 18.18% of companies in the sample and small if it lies in the bottom 18.18% (on the 22 considered companies, only four are considered big); the dummy variable for international exposure takes value one if the firm before the merger event had external revenues and value zero otherwise. In this construction set up the productivity dimension is not taken in consideration. As result, the regression with the first method will take the following form:

$$T_{i,t} = \alpha_i + \beta_1 D_{i,t}^1 + \beta_2 D_i^{Big} * D_{i,t}^1 + \beta_3 D_i^{Small} * D_{i,t}^1 + \beta_4 D_i^{Foreign} * D_{i,t}^1 + \beta_5 D_i^{Foreign} * D_i^{Big} * D_i^{Small} * D_{i,t}^1 + \gamma * W_t + \epsilon_{i,t}$$

The second method on the contrary is not based on dummy variables, but it uses time-individual varying variables, taking into consideration changing of time changing in the regression.

---

[36] The GDP per capital of Portugal historical series is taken from the IMF website.

[37] The fixed-effect model assume that some individual characteristics can have an impact on the outcome variable or predictor, and therefore a control is required. The fixed-effect model eliminates the time-invariant individual characteristics to assess the net effect of the independent variable on the outcome variable. The fixed-effect model, in addition, assume that each individual time-invariant characteristic is unique, so each entity's error term and constant is not correlated with the ones of the other individuals.

[38] The random-effect model is used when there is not the suspicious that differences across companies have an impact on the dependent variable. On the contrary of fixed-effects model this method of estimation allows for the inclusion of time-invariant variables.

[39] If the Hausman value is lower than 0.05 the fixed-effect model is used for the estimation of the regression.

[40] This test also known as test for cross-sectional dependence set as null hypothesis that the residuals across the entities are not correlated.

[41] Individual-varying but not time varying.

As consequence the following variables and regression were created:

- $X_{i,t}^{MC}$ a time-individual variable showing the market capitalization of firm i at time t and capturing the size of the firm,
- $X_{i,t}^{ER}$ a time-individual variable showing the external revenues of firm i at time t and capturing the international exposure of the firm,
- $X_{i,t}^{EBITDA}$ a time-individual variable showing the EBITDA of firm i at time t and capturing the productivity of the firm.

$$T_{i,t} = \alpha_i + \beta_1 D_{i,t}^1 + \beta_2 X_{i,t}^{MC} * D_{i,t}^1 + \beta_3 X_{i,t}^{ER} * D_{i,t}^1 + \beta_4 X_{i,t}^{EBITDA} * D_{i,t}^1 + \beta_5 X_{i,t}^{MC} * X_{i,t}^{ER} * X_{i,t}^{EBITDA} * D_{i,t}^1 + \gamma * W_t + \epsilon_{i,t}$$

Some issues on data, that lead some consequences on the regression estimation, have to be pointed out: the analysis is conducted on a sample with a prevalence of post-merger data and only a single observation before the merger, leading post-merger data to "weight more" than the pre-merger data, and companies analysed are only 22 due to problems in the availability of data and lack of important information about delisted companies prior to 2020.

The results delivered by Ulf Nielsson were instead based on a bigger sample of 79 firms for the Portuguese market and a sample with balanced time frame between the post and pre-merger event. Ulf Nielsson's results show evidence that the merger of the Portuguese exchange with Euronext was particularly beneficial for the overall equity market and an additional benefit was then found for big firms with foreign exposure. Nevertheless, big firm not known internationally suffer a loss linked to the merger event.

In this thesis both the methods presented before were used to test the consequences of the creation of Euronext-Lisbon, looking in total to 9 different regressions, tested on two samples[42]. The decision to create an alternative method to the one of Ulf Nielson is due to the Portuguese equity market structure and characteristics. First of all, creating a dummy variable based on an arbitrary percentage of firms that before the merger experienced a high market capitalisation, could be not really representative of the Portuguese market, that is characterized by only big, listed firms. This kind of selection can be seen as a selection of big or small firms among big ones, that can mislead the results of the analysis. Moreover, the fact that this kind of variables are not time-varying leads to the implicit assumption that big firms always remain big and small firms will never grow. The results of the econometric analysis on the full sample are shown in Table 1, where statistically significant results are in bold.

The first five regressions are created and tested following the method of Ulf Nielsson and, although the results do not have the same predictive power, it is still relevant to notice how companies 'size

[42] The entire sample of 19 years (31st December 2001 - 31st December 2019, 418xK observations) and subsequently to a smaller sample of 9 years (Sub-sample: 31st December 2001 - 31st December 2009, 198xK observations).

plays an important role. Nevertheless, the merger event does not result to be statistically significant in the first four regressions, and only in the fifth one it results to be significant and negative. To be pointed out is also the fact that Nielsson was able to look also at small firms, but in this case was not possible to evaluate properly the case of small firms due to multicollinearity problems with the variables. It was not possible in fact to insert a dummy for Small*Foreign exposure*Merger.

From the sixth regression the analysis starts to substitute the dummy variables with the time-individual-varying variables. The results with this second method show that the merger event negatively affected the liquidity of the listed companies, but this negative effect is partially mitigated by the increment of the size of the company and on the contrary exacerbated by the high productivity of firms. This is particularly evident in the regression number eight. Foreign exposure of a company seems to not play an important role as mitigating characteristic.

The analysis was then performed again on the subsample of 9 years[43]. Comparing the results of the full sample and the sub-sample, the analysis shows the same impact of the market capitalization as mitigation element. Nevertheless, the results of the two samples are different in many aspects: the importance of the profitability characteristics as mitigation variable (in the subsample productivity do not result to be statistically significant) and the method used for the estimation (sometimes it results to be a fix-effect model and sometimes a random-effect model).

Although the achieved results do not have the same predictive power of the ones by Ulf Nielsson, the analysis is useful to identify an evaluation structure of the heterogeneity of firms' responses to the merger event, especially for future empirical research. For example, Euronext-Dublin was created in 2018, and today data of the post-merger event are not enough to evaluate the consequences of it on the firm's liquidity. A future analysis can be performed on the Irish exchange, as well on Oslo exchange and the Italian exchange. A special attention can be given to Euronext-Milan, that officially entered as part of Euronext in 2021, since this market shares many characteristics with the Portuguese one.

Considerations

The fifth chapter is focused on some proposals for the evolution of CMU, presenting a recognized opinion at international level, delivered by the Federation of European Securities Exchanges, and some ideas from an architectural point of view in the governance in the surveillance of the CMU. In 2019 the Federation of European Securities Exchanges (FESE) published a paper known as: "FESE Blueprint: Capital Markets Union by 2020, a vision for Europe". The paper did not deliver a proposal structure for the Capital Markets Union but proposed 20 objectives that need to be achieved before 2024 to foster the EU growth in capital markets.

[43] 31st December 2001 - 31st December 2009,

In addition, looking at the CMU it is possible to suggest a change in the role and powers of ESMA, playing a more concrete and substantial role in the CMU's surveillance. The revision of ESMA's powers and role, and in general of all ESAs[44], is not an unexpected event, since periodically these authorities are subject to revision and restructure; last revision of ESMA is dated December 2019 and is effective from the first of January 2020[45].

What can be the future scenario in the regulatory field in the implementation of the Capital Markets Union? Looking at the prior experience of the Banking Union, two pillars were created: The Single Supervisory Mechanism (SSM), and The Single Resolution Mechanism (SRM), based on an ex-ante supervision and an ex-post control of banks. All the process is based on the cooperation between National Authorities, European Authorities as the EU Commission and ECB, and European Agencies as the European Banking Authority (EBA), the correspondent agency of ESMA in the banking field. These similarities can suggest a parallelism between the Banking Union and the Capital Markets Union architecture, looking to a new role for ESMA.

At regulatory level in fact, it is possible to think to a different role and mechanism of supervision of the Capital Markets Union, enchanting the powers and structure of ESMA, looking to a separation between ex-ante and ex-post surveillance or significant and less-significant markets, under the surveillance of National Competent Authorities.

[44] ESMA, EBA, EIOPA

[45] European Securities and Market Authority (ESMA). ESA review. ESMA website. https://www.esma.europa.eu/about-esma/who-we-are/esa-review

TURNOVER	Regressions sample December 2001-December 2019								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Merger event $D_{i,t}^{1}$	1.53e+07 (0.964)	-3.71e+08 (0.336)	-6.47e+08 (0.287)	-4.68e+08 (0.313)	**-1.22e+09** (0.002)	-4.75e+08 (0.308)	**-8.94e+08** (0.000)	**-7.68e+08** (0.001)	-2.59e+08 (0.394)
Big*Merger event $D_{i}^{B} * D_{i,t}^{1}$		**2.01e+09** (0.002)	**1.90e+09** (0.004)		**2.18e+09** (0.007)				
Small*Merger event $D_{i}^{S} * D_{i,t}^{1}$		1.20e+08 (0.850)	3.78e+08 (0.630)		1.16e+09 (0.127)				
Foreign exposure* Merger event $D_{i}^{F} * D_{i,t}^{1}$			3.90e+08 (0.552)	2.22e+08 (0.676)		2.31e+08 (0.666)			
Big*Foreign exposure*Merger event $D_{i}^{B} * D_{i}^{F} * D_{i,t}^{1}$				**1.88e+09** (0.004)		**1.88e+09** (0.005)			
External revenues* Merger event $X_{i,t}^{ER} * D_{i,t}^{1}$					**8.91e-01** (0.000)		4.07e-01 (0.151)	-2.93e-02 (0.374)	
Big*External revenues*Merger event $D_{i}^{B} * X_{i,t}^{ER} * D_{i,t}^{1}$					**-8.44e-01** (0.000)				
Small*External revenues*Merger event $D_{i}^{S} * X_{i,t}^{ER} * D_{i,t}^{1}$					-8.04e-01 (0.779)				
EBITDA* Merger event $X_{i,t}^{EBITDA} * D_{i,t}^{1}$						2.17e-03 (0.738)	5.50e-04 (0.899)	**-7.76e+04** (0.103)*	
Market Cap*Merger event $X_{i,t}^{MC} * D_{i,t}^{1}$							**5.64e-01** (0.000)	**5.00e-01** (0.000)	
Market Cap*External revenues*EBITDA*Merger event $X_{i,t}^{MC} * X_{i,t}^{ER} * X_{i,t}^{EBITDA} * D_{i,t}^{1}$								**5.05e-21** (0.000)	**1.41e-20** (0.000)

TURNOVER	Regressions sample December 2001-December 2019								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	1.44e+09 (0.017)	1.44e+09 (0.037)	1.44e+09 (0.036)	1.44e+09 (0.037)	1.44e+09 (0.195)	7.12e+08 (0.038)	1,43e+09 (0.001)	1.61e+09 (0.000)	1.94e+09 (0.001)
Control variable	-3.94e+04 (0.319)	-3.94e+04 (0.316)	-3.94e+04 (0.317)	-3.94e+04 (0.316)	1.62e+04 (0.655)	-3.95e+04 (0.316)	-3.56e+04 (0.183)	-4.89e+04 (0.065)	-7.53e+04 (0.030)
Method of estimation	FE	RE	RE	RE	FE	RE	RE	RE	RE
Housman test result (if <0.05 Fixed-effect model is used)	0.00	0.82	0.08	0.44	-3.21	0.45	0.44	0.53	0.97
R^2 overall	0.00	0.14	0.11	0.13	0.43	0.13	0.71	0.70	0.46
R^2 within	0.00	0.02	0.02	0.02	0.20	0.02	0.57	0.59	0.28
Breusch-Pagan LM test for heteroskedasticity	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 3: Econometric results, subsample 1 from December 2001- December 2019. P-vale is indicated in parenthesis at 5% significance vale. * P-value at 10% significance value. Estimation executed with STATA. Source: Refinitiv and IMF.

Conclusions

Capital Markets Union from a theoretical point of view seems to be not only a profitable project for the EU, but also one of the main drivers in rebuilding financial and economic wealth of Member States after the Covid-19 pandemic.

CMU in fact sets as main goals the creation of a strong alternative form of financing, different from the banking system, able to empower firms, citizens and investors. The high reliance of firms on the banking system in Europe today is still a matter of fact, but the creation of a strong and profitable capital market in Europe can represent a way to diversify investment sources from the investors 'point of view and to relay on different sources of financing for firms. Today in fact capital markets are not so developed in some Member States, and as outlined in the case of the Portuguese market, markets are characterized by the presence of already big and highly capitalized companies.

The idea of this thesis was to analyse empirically the consequences of the CMU project, looking at it from the prospective of equity markets. In particular, taking Euronext as prototype for CMU, the consequences of the merger of Euronext-Lisbon on the listed companies in the Portuguese market in terms of liquidity were empirically investigated by an econometric analysis on panel data from 2001 to 2019, taking also into consideration the heterogeneity of companies' responses.

The results show the significant effect of the market capitalisation on the liquidity after the merger event.

Moreover, some proposals of different regulatory and surveillance systems for the forthcoming CMU are proposed.

Capital Markets Union could be implemented both through the creation of a Single Capital Market for all EU States, or through a system of exchanges and/or capital markets. Due to the evolution of the business of exchanges in the world, all these hypotheses led to many questions based on the governance and role played by these entities.

In addition, the creation of the CMU asks for a revolution of the surveillance of the capital markets in Europe, achieved by an empowered ESMA or a new structure able to meet the need of regulation and surveillance of CMU.

To conclude, since there are still some unanswered questions on CMU, it could be useful to consider further empirical investigation and research to assess pros and cons of the implementation of this project: a theoretical analysis could be not enough to fully cover and explore the real consequences in the creation of the CMU.