The Effect of CMU Action Plan of 2015 on the Member States in Central Eastern Europe: Eased Access of Firms to Financing Opportunities

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Abstract

The Capital Markets Union Action Plan of 2015, was the first initiated strategy for establishing a single market of capital in the European Union. After significant consequences of the global financial crisis of 2008, the action plan was introduced to increase market efficiency and diversify the funding sources for European companies, and it possessed a huge potential for Central and Eastern European (CEE) member states due to the limited activity of their capital markets. This study examines the influence of the regulations regarding the CMU Action Plan 2015 on eased access and decreased cost of funding for the CEE companies. In particular, the research focuses on examining IPO activity, earnings-price ratios (E/P), and interest rates on new business loans. The findings indicate that there has been no significant impact on IPO issues or E/P ratios; nevertheless, smaller businesses could have benefited from a decrease in interest rates for loans up to 1 mln EUR. The efficiency of the CMU may be limited due to the low market liquidity and still developing equity markets in the CEE region. Additionally, during the research period, CEE member states encountered significant economic events, namely the European sovereign debt crisis, Brexit, and COVID-19. Despite the immediate effects of the CMU Action Plan being rather unclear, there could be potential long-term benefits of the regulations in reducing borrowing costs for companies and increasing their capital markets activity.

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Abbreviations

CMU – Capital Markets Union

CEE – Central and Eastern Europe

CCP – Central Counterparty Clearing House

EU – European Union

EU-11 – EU enlargement countries, including Bulgaria, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, Slovakia, and Czech Republic

E/P – Earnings-Price Ratio

GDP – Gross Domestic Product

IPO – Initial Public Offering

OECD – Organization for Economic Cooperation and Development

P/E – Price-Earnings Ratio

OTC – Over-the-Counter

SME – Small and Medium-Sized Enterprises

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1 Introduction

A competitive European economy is a goal that has gained importance in light of recent developments in the world economy. In order to reach the full potential of the single market and position Europe for success, the European Commission on 30 September 2015 adopted an action plan on building a capital market union[1]. Among the main objectives was strengthening the European economy, in particular after the global financial crisis, with a long-term perspective. European Commission suggested achieving this by expanding business funding options, giving savers more choices by improving the way financing is connected to investment projects throughout the EU, stabilizing the financial system, and enhancing financial integration through increasing competition.

Despite having previous attempts by the European Commission to build a free flow of capital and allow European firms to receive funding from capital markets, European SMEs lag behind the US ones by receiving five times less funding from capital markets[2]. Especially, the introduction of the action plan is relevant for Central Eastern European Member States, where the capital markets provide offer limited opportunities for businesses to issue both, stocks and bonds, and in general to access funding due to structural differences between East and West Europe[3]. The purpose of this paper is to investigate the effect of the introduction of the Capital Markets Union (CMU) Action Plan of 2015, in particular, the effect of directives and regulations that address the goals mentioned in the strategy plan, on the Eastern European capital markets. The focus of this research is to investigate whether the implementation of relevant regulations eased the access of Central Eastern European companies to enter and raise capital on public markets and decrease the cost of funding.

This study begins by stating the general background and history of the European Union economy on the road to a single market union, which implies the previous deci-

[1]'Timeline: Moving to a Deeper Single Market - Consilium', accessed 24 March 2024, https://www.consilium.europa.eu/en/policies/deeper-single-market/timeline-single-market/.

[2]'Action Plan on Building a Capital Markets Union - European Commission', accessed 24 March 2024, https://finance.ec.europa.eu/publications/action-plan-building-capital-markets-union$_e n$.

[3]Dóra Piroska and Rachel A. Epstein, 'Stalled by Design: New Paradoxes in the European Union's Single Financial Market', Journal of European Integration 45, no. 1 (2 January 2023): 181–201, https://doi.org/10.1080/07036337.2022.2154344.

sions and attempts to provide the member states with easier and more diverse capital market access. The research also discusses the relevance of the problem for the CEE region and the expectations towards the CMU Action Plan 2015, according to the existing literature before and shortly after the announcement. After the previous discussion, the already implemented regulations of the action plan towards European companies are described. The methodology chapter includes in detailed explanation of the chosen study sample, the data collected, and the prevailing method of data evaluation. The results of the research are presented in four different parts, as each of the parts represent the different analysed variables. After presenting the results, the next chapter discusses the findings and compares them to the general expectations and current market situation. The research concludes with policy implications and specifies the areas which could potentially be addressed in order to achieve the desired effect of the Capital Markets Union Action Plan of 2015.

2 Background

2.1 Relevance of the Problem

The ambition for a competitive European economy has been present in the European Union Policy since the signing the Maastricht Treaty in 1993. The foundations for economic and monetary union, established for 12 European Member States at that time, aimed to promote economic and social progress via introducing a single currency[4]. A further important development for the economic development of European Union Memberstates was the flagship project of the European Commision announced on 30th September 2015. According to the European Commission and as was mentioned in the paper of Quaglia, Howarth, and Liebe, the term Capital Market Union itself was chosen on purpose to emphasize that it was an extension of the Banking Union of EU, introduced in 2014, and the crucial part to form the Economic and Monetary Union, which had been the subject of intense intergovernmental discussion and EU legislation since 2012[5]. The continuation of creating the pillar for free capital movement and a strong single European economy is especially relevant and needed today in the face of geopolitical instability experienced in the recent years with Russian invasion in Ukraine. Among one of the main problems that CMU was about to address was the strong dependence on the bank lending of European companies in EU. In comparison with US, as mentioned by Véron and Wolff, the US corporations rely more on corporate bonds, securization and equity financing[6]. In 2015 approximately 80 percent of all financial assets in the EU consisted of bank credit. As mentioned by the authors, the stock market capitalization in EU in 2013 was 64.5% of GDP, which was also lagging behind the U.S. and Chinese ones, with 138% and 74% of GDPs accordingly. The EU venture capital was subject to the same lagging, as the average EU venture capital fund size in 2013 consisted of EUR 60

[4]'How Maastricht Changed Europe', accessed 24 March 2024, https://www.consilium.europa.eu/en/maastricht-treaty/.

[5]Lucia Quaglia, David Howarth, and Moritz Liebe, 'The Political Economy of European Capital Markets Union', Journal of Common Market Studies 54 (2016): 185.

[6]Nicolas Véron and Guntram B. Wolff, 'Capital Markets Union: A Vision for the Long Term', Journal of Financial Regulation 2, no. 1 (1 March 2016): 130–53, https://doi.org/10.1093/jfr/fjw006.

mln, meanwhile a comparable US one had more than double[7]. The EU financial system's having a national structure was another significant factor that prevented cross-border financial integration. With very little cross-border loans and subsidiary ownership, retail banking has remained mostly domestic since the crisis of 2008. However, even before the international financial crisis, strong home-country bias was present in both dent and equities markets. Consequently, seldom did investors or purchases of corporate debt go outside their home countries in the EU. Therefore, the CMU Action Plan of 2015 was introduced to reinforce the Investment Plan of Europe and aimed to offer benefits for 28 Member States with a strong objective to promote capital markets that would enhance the access to capital for all businesses through Europe, particularly for SMEs and infrastructure, by promoting stronger capital markets that would supplement banks as a source of financing[8]. The European Commission suggested the following 6 focus areas, extracted directly from the CMU Action Plan 2015[9]:

- Financing innovation, new businesses, and non-listed companies - Reduction of obstacles for businesses looking to raise money on public markets - Establishing the infrastructure for long-term, sustainable investment - Encouraging institutional and retail investment - Leveraging banking capacity to boost the wider economy - Encouraging international investment.

Additionally, the Commission emphasized that the CMU must include all the member states, however, the distinct advantages were supposed to benefit the euro region, especially about risk-sharing as capital markets have a significant impact on the distribution of economic risk among various geographical areas and legal systems.

[7]European Venture Capital Funds | EUR-Lex', accessed 13 May 2024, https://eur-lex.europa.eu/EN/legal-content/summary/european-venture-capital-funds.html.

[8]'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' (2015), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX3A52015DC0468.

[9]Christos Gortsos, 'The Foundation of the European Capital Markets Union (CMU): From the 2015 to the 2020 CMU Action Plan and Their Implementation', SSRN Scholarly Paper (Rochester, NY, 9 January 2022), https://doi.org/10.2139/ssrn.4005259.

2.2 Prediction of previous studies

Since the introduction of the CMU Action Plan, the vision for its prospects of it has been presented in a sample of studies. As one of the examples, Barbu and Strachinaru in their research regarding the opportunities and impact of CMU on the European financial market tested the relationship between initial public offerings (IPOs) and measures of financial integration such as the size of the capital market and changes in credit standards. Based on their findings, constraints on bank lending led to an increase in financing through IPOs, which illustrates the complementary nature of the two processes of funding the economy through capital and banking markets. The authors also mentioned the potential benefits of the CMU for the European financial market, which include increased attention to customer crefiworthiness and its orientation towards risk diversification .

The other paper by Véron and Wolff , which also analyzed the potential effect of CMU, presumed the improvement of funding for SMEs, based on the more dynamic market for creating and placing SME credit as securities. However, the authors also mentioned that it would only really matter for a small percentage of bigger SMEs because of the unique characteristics of SME credit risk and the expense of securization documentation. In general, the insightful suggestion from the paper was to perceive the whole action plan not as a 'quick fix', but rather the gradual development of financial systems[10]. The other approach to the CMU, presented by Ringe, considers the union complementary to the Banking Union, however in a broader spectrum since it also involves non-euro areas. According to the author, the word 'union' was a little deceptive because the project entailed a gradual enhancement of the current regulatory structure overseeing the integration of various capital markets of EU member states. Ringe argues that the announcement of a union action plan can be only a promotional campaign to rebrand an already established policy and bring minimal additions[11].

[10] Véron and Wolff, 'Capital Markets Union'.

[11] Wolf-Georg Ringe, 'Capital Markets Union for Europe - A Political Message to the UK', SSRN Scholarly Paper (Rochester, NY, 9 March 2015), https://doi.org/10.2139/ssrn.2575654.

2.3 Implemented Regulations and the Area of Research

As the CMU 2015 main goal was to improve access of companies to diversified funding and improve market efficiency and integration within the EU, the adopted regulations by the European Parliament were especially relevant for EU-11 countries, which are the European states located in Central and Eastern Europe: Bulgaria, Czech Republic, Croatia, Estonia, Latvia, Lithuania, Poland, Romania, Slovenia, and Slovakia. Most of these countries used to be part of the Eastern bloc (except for former Yugoslavia which was a member only until 1948)[12], others were part of the Soviet Union (Lithuania, Latvia, and Estonia), and therefore share the communist heritage is still part of their day-to-day operations notwithstanding the official transition after the accession to EU. The countries' financial systems have been completely rebuilt over the past thirty years[13]. However, despite having well-established banking networks, the national capital markets remain lagging behind the Western EU member states regarding market size and quantity, as mentioned by the European Bank of Reconstruction and Development in 2015[14].

According to the data from 2015, the use of capital markets by non-financial corporations in CEE was below the EU average. As of 2015, the EU average of listed shares being used for financing corporations was 21%, meanwhile, among the CEE the countries with the highest percentage of shares financing companies were Croatia (13.8%) and Poland (12.4%). Still, the one common feature was preserved in the whole EU: a majority of enterprise's funding comes from its resources. As Eurostat mentioned, the other common financial liabilities of non-financial corporations in CEE countries in 2015 were unlisted shares, especially in Hungary (52.9%) and in Slovakia (42.9%), debt securities (the biggest share of 5.4% belonged to Chezh Republic), and loans[15].

Legal constraints were a major consideration while evaluating the capital markets for CEE enterprises, particularly for small businesses. For example, certain actors may find

[12] 'Eastern Bloc. - EBSCO', accessed 16 May 2024, https://research.ebsco.com/c/wgoqig/viewer/html/bqjjpo2hef.

[13] Simon Oertel, Kirsten Thommes, and Peter Walgenbach, 'Shadows of the Past: The Effect of Communist Heritage on Employee Consultation', ILR Review 69, no. 3 (2016): 683–713.

[14] 'Regional Central Counterparty to Boost CEE Local Capital Markets', accessed 17 May 2024, https://www.ebrd.com/news/2015/regional-central-counterparty-to-boost-cee-local-capital-markets.html.

[15] 'Vienna Initiative', accessed 18 May 2024, https://vienna-initiative.com/.

the legal constraints too expensive and onerous, which could deter the companies from participating in IPOs. The Working Group on Capital Markets Union at the Vienna Initiative Meeting in 2018 stated that a harmonized legal framework at the regional level could be advantageous for some market segments, which are not harmonized at the EU level[16]. The request of each of the CEE countries in harmonizing regulations differed according to the countries' current needs.

The CMU Action Plan of 2015 was supposed to integrate European capital markets by 2019, outlining 33 distinct areas for focus and associated actions. By the beginning of 2017, 20 out of the 33 measures mentioned in the plan were delivered, and the European Commission initiated the Mid-term Review to update the CMU working program in light of changing challenges and objectives. The biggest obstacle then was the announcement of Brexit, which only made the financial integration more crucial, highlighting the need for robust and competitive European capital markets[17].

Among the main assumptions of the European Commission regarding the capital markets union was that it would give companies, particularly SMEs, more affordable financial options and the required capital[18]. Therefore, the first dedicated action plan for the development of single market of capital in the EU (which is the discussed CMU action plan) included the following related regulations:

- An establishment of collective investment funds, which aim to promote venture capital and social investment within the European Union. Additionally, the regulations would facilitate the cross-border distribution of collective investment funds, eliminating burdensome requirements and harmonizing national regulations. The regulations regarding European Venture Capital Funds (EuVECA) and European Social Entrepreneurship Funds (Eu-SEF) were already adopted in 2013 by the EU, and the CMU 2015 amended it by increasing the number of companies that can be invested in and revealing the fund

[16]'Vienna Initiative'.

[17]'What Is the Capital Markets Union? - European Commission', accessed 22 May 2024, https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/capital-markets-union/what-capital-markets-union$_e n$

[18]'QA on the Capital Markets Union Action Plan', Text, European Commission - European Commission, accessed 22 May 2024, https://ec.europa.eu/commission/presscorner/detail/en/qanda$_2 0_1$676.

labels to fund managers across all sizes[19]. Regarding small and medium enterprises, the European Long-Term Investment Fund Regulation (ELTIF) was adopted on 29th April 2015. The regulation provides a legal framework for EU funds to solely invest in companies that require long-term financing. In certain aspect, the ELTIF's framework is a mixture of Alternative Investment Fund products (AIF), and products of "Packaged retail and investment" (PRIIPs) and "Undertaking for collective investment in transferable securities" (UCITS). ELTIF includes funds that concentrate on investment in alternative asset sectors (e.g. real estate, infrastructure) and SMEs with capitalizations of up to EUR 500 million, that have been admitted to trade on a regulated market and are unlisted[20]. To generate financing for European enterprises from a wider range of investors, ELTIFs cover institutional and retail.

• Adopting the Prospectus Regulation on 14th June 2017, with the proposal submitted in the CMU 2015 plan, provided European companies with a 'single passport' for the issuers of securities. This legal document covered information on a company's business focus, the issued securities, the table of shareholders, and the other necessary information needed before investing. Companies looking to raise capital through public offering or have their securities admitted for trading on regulated markets are required to provide investors with Prospectus[21]. The document, once approved in one of the EU Member State, is valid throughout the EU and thus it makes financing for smaller businesses more achievable disgarding the company's location.

• In the area of boosting the investment and broadening it, the regulation on transparent, and standardized securitization was adopted on 12th December 2017. Securitization (the process of banks and other credit institutions bundling loans into securities and selling them to investors) enabled banks to shift some of the loan-associated risks to other

[19]CAPITAL MARKETS UNION: NEW RULES TO SUPPORT INVESTMENT IN VENTURE CAPITAL AND SOCIAL ENTERPRISES', Text, European Commission - European Commission, accessed 23 May 2024, https://ec.europa.eu/commission/presscorner/detail/en/ip$_1 6_2$481.

[20]Regulation (EU) 2015/760 of the European Parliament and of the Council of 29 April 2015 on European Long-Term Investment Funds (Text with EEA Relevance)', 123 OJ L § (2015), http://data.europa.eu/eli/reg/2015/760/oj/eng.

[21]Securities Prospectus - European Commission', accessed 24 May 2024, https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/financial-markets/securities-markets/securities-prospectus$_e n$.

banks or long-term investors, such as insurance companies and asset managers, freeing the banks' offset capital for new loans. The balance sheet optimization was supposed to even assist with the green transition, which demanded funding from both public and private investors and was one of the biggest challenges in 2015. CMU proposed the framework of securitization regulation with common rules on due diligence, first attention, and transparency, therefore creating standardized securitization products. The balance sheet optimization was supposed to even assist with the green transition, which demanded funding from both public and private investors and was one of the biggest challenges in 2015[22].

• Providing an integrated European framework for covered bonds on 18th April 2019. The covered bonds serve as a "double-source protection" whereby bondholders have an ordinary claim against the issuer's other assets and a direct and preferred claim against certain allocated asses in the case of the issuer's collapse. For many EU Member States, they are a vital tool for long-term financing, since they direct money into the real estate market and public organizations. However, the Member States had different rules regarding this funding source. It resulted in the Commission proposing: a common definition of covered bonds, defining criteria of its structural features (quality of backed assets, transparency standards, etc), defining the obligations and duties of the covered bonds' supervision, and establishing the guidelines for using the label "European Covered Bonds". Additionally, the overall economy's borrowing costs under the regulation would be lowered and the annual savings for all EU debtors would be in the range of EUR 1.5 billion and EUR 1.9 billion[23].

The other regulations related to the European companies were in the Promotion of SME Growth Markets field. According to the Commission, small and medium enterprises can benefit greatly from listing on stock exchanges. Before the financial crisis of 2008, Europe produced more of SME initial public offerings. Originally, the new type of multi-

[22]'Securitisation - European Commission', accessed 8 April 2024, https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/financial-markets/securities-markets/securitisation$_e n$.

[23]European Parliament, 'Issue of Covered Bonds and Covered Bond Public Supervision | Legislative Train Schedule', European Parliament, accessed 27 May 2024, https://www.europarl.europa.eu/legislative-train/package-capital-markets-union-mid-term-review/file-covered-bonds-issue-and-supervision.

lateral trading facility - "SME growth market", was implemented by Markets in Financial Instruments Directive II (MiFID II) in June 2014 and later enhanced by the SME Listing Act (November 2019) and the listing package (December 2022). The SME Listing Act amended the MiFID directive and represented a significant shift towards incorporating sustainability concerns into the financial industry, which is a proposal for a directive to strengthen EU clearing services, harmonize corporate insolvency rules, and ease administrative burdens for SMEs. However, this proposal has been recently announced (on 14th February 2024) as a provisional agreement and it is aimed to reduce costs and bureaucratic obstacles to help European companies of all sizes, especially small and medium enterprises, to access greater funding[24]. In particular, the provisional agreement reduces the extent of the disclosure duty in cases of lengthy procedures (multi-stage events), relaxes the investment research regulations, and increases the visibility of listed issuers and servers to enlighten potential investors about the possibility of investing in SMEs. The final agreement, though, is still in the process of finalization and will be formally adopted later[25]. Additionally, CMU 2015 amended the European Market Infrastructure regulation (EMIR), originally adopted in 2012 to increase over-the-counter derivatives markets transparency and reducing operational and credit risks[26]. The CMU included the revision of EMIR, with amendments of rules on OTC derivatives to make them more reasonable and straightforward and the 2nd set of amendments in June 2017 enhanced the supervision of third-country Central Counterparties (CCPs). Considering the mentioned adopted proposals, which specifically focus on European Companies, the question to analyse is whether these implemented regulations of CMU Action Plan 2015 had a significant impact in Eastern European Union Member States, in particular: Bulgaria, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Romania, Slovenia, and Slovakia.

[24]Listings on European Stock Exchanges: Council and Parliament Agree on New Act', accessed 18 April 2024, https://www.consilium.europa.eu/en/press/press-releases/2024/02/01/listings-on-european-stock-exchanges-council-and-parliament-agree-new-act/.

[25]Listings on European Stock Exchanges'.

[26]'Explanatory Memorandum to COM(2017)208 - Amendment of Regulation (EU) No 648/2012 on Numerous Issues Concerning the Clearing Obligation, Reporting, Risk-Mitigation, Registration and Trade Repositories - EU Monitor', accessed 25 May 2024, https://www.eumonitor.eu/9353000/1/j4nvhdfdk3hydzq_j9vvik7m1c3gyxp/vkdxi2kki3z6.

3 Methodology

This chapter dives into the description of the methodology used for the estimation of eased access to capital markets for the companies in the CEE region based on the adopted regulations, mentioned in the previous part. The effect could be estimated by applying a difference-in-differences analysis, where CEE countries within the EU would be in the treated group. The control group includes countries that either share a similar history of economic transition from a planned to a market economy or in general possess similar economic characteristics to the treated group. Using this approach would allow this research to estimate what was the average effect of an intervention, and regulations of CMU regarding European companies, on the treated sample.

3.1 Chosen Sample

The treated sample for this paper includes EU-11 countries, excluding Cyprus and Malta[27], the representative of Central Eastern Europe, as described above, shared a generally similar historical background and at the moment of joining the EU lagged behind the Western European Member States. Most of the CEE states joined the EU in its biggest enlargement of 2004, except for Bulgaria and Romania which joined in 2007 and Croatia which joined in 2013[28]. As Croatia was the latest one to join the EU, this country will be omitted from the research due to the limitation of data observation.

Considering parallel trend assumptions, which are needed for displaying the average impact of regulation, the most comparable and appropriate in this context control group includes the countries that used to have a common history with EU-11 countries. The considered controlled group includes countries that belong to the Eastern Partnership in the frames of the European Neighbourhood Policy: Georgia and Ukraine[29]. The

[27] Statistics Netherlands, 'EU-11 Countries', webpagina, Statistics Netherlands, accessed 25 May 2024, https://www.cbs.nl/en-gb/news/2017/05/more-eastern-europeans-working-in-the-netherlands/eu-11-countries.

[28] From 6 to 27 Members - European Commission', 29 May 2019, https://neighbourhood-enlargement.ec.europa.eu/enlargement-policy/6-27-members_en.

[29] 'Eastern Partnership - European Commission', 22 March 2024, https://neighbourhood-enlargement.ec.europa.eu/european-neighbourhood-policy/eastern-partnership_en.

other included countries are members of the Central Europe Free Trade Area (CEFTA): Albania, Bosnia and Herzegovina, North Macedonia, and Serbia[30]. The last country to be included in the control group is Turkey, which is part of the Prague Process Joint Declaration of 2009, which encouraged the country to form migration partnerships with the EU through targeted migration partnerships[31].

While the controlled sample certainly possesses its limitations due to the mentioned countries not being part of the EU and thus not being under the influence of other policies related to the EU economic development, some similarities could be found between the treated and control groups. All the control sample countries (except for Turkey) went through the transformation from being centrally planned to becoming market-oriented economies. The Balkan countries Bosnia and Herzegovina, North Macedonia, and Serbia, same as Slovenia and Croatia (excluded from the dataset) used to be part of former Yugoslavia. Despite being an anomaly in comparison to other communist nations and those that were part of Yugoslavia, Slovenia also faced many of the same challenges as other states in Central and Eastern Europe after the fall of the Berlin Wall and the collapse of communism throughout the region[32]. The other Balkan country, Albania, along with the already mentioned Bosnia and Herzegovina, Serbia, and North Macedonia, is part of CEFTA, the international trade agreement established in 1993 between countries located mostly in Southeastern Europe, to which also belonged the Czech Republic, Hungary, Poland, Slovakia, Romania, and Bulgaria before joining the EU. Joining CEFTA could have been considered as EU-promoting cooperation and a step towards joining the union[33].

The other countries of the control group, Ukraine and Georgia, are the part of Eastern Neighborhood Policy and Eastern Partnership which implies extensive cooperation in the areas of immigration and domestic affairs. In addition to this, these control countries share the same communist background with former Soviet Union member states:

[30] Alex Warleigh-Lack, Nick Robinson, and Ben Rosamond, New Regionalism and the European Union: Dialogues, Comparisons and New Research Directions (Routledge, 2011).

[31] 'Eastern Partnership - European Commission'.

[32] 'Slovenia: Birth of an Adriatic Tiger?', accessed 25 May 2024, `https://www.tcd.ie/Economics/assets/pdf/SER/1996/Fergal_Shortall2.html`.

[33] Warleigh-Lack, Robinson, and Rosamond, New Regionalism and the European Union.

Lithuania, Latvia, and Estonia. Additionally, Ukraine and Georgia, as well as Albania, share a socialistic background with the Eastern Bloc countries, including Bulgaria, Czech Republic, Hungary, Poland, Romania, and Slovakia.

Including Turkey in the control sample is mostly due to its strong integration in terms of trade with Balkan countries, which volume especially increased due to both Turkey's economic growth and the liberalization of the region, which is by EU membership requirements[34]. This state has been trying to pursue the program of political, social, and economic westernization since the country's founding in 1923 in the hopes that it would transform Turkish society. However, even after communism's collapse in Central Eastern Europe, where many of the nations had poorer economies, they were still regarded as belonging to Europe on a political and cultural level, meanwhile, Turkey's integration into the EU was prolonged mostly due to rather political than economic nature[35].

To summarize the choice of the control sample, important is to mention that all of the selected countries are subject to the policy of EU enlargement, and currently hold the status of EU candidates. In their case, once the discussions and related changes are concluded and accepted by both parties, these countries may become full-time EU members, provided that all member states agree[36].

3.2 Data used. Explanation of Variable

For estimating the effect of CMU Action Plan 2015 regulation, this research focuses on these specific regulations (as mentioned above):

The data used for the research includes the time series from 2009 until 2022. The period of observations started in 2009 due to the availability of chosen data set variables for the

[34]Mustafa Çakır, 'An Economic Analysis of the Relationship Between Turkey and the Balkan Countries', Adam Academy Journal of Social Sciences 4, no. 2 (1 December 2014): 77–86.

[35]'Brief$_{T}urkey_{Q}uest_{E}U_{M}embership_{2}008.Pdf', accessed 25 May 2024, https://europe.unc.edu/wp-content/uploads/sites/314/2016/11/Brief_{T}urkey_{Q}uest_{E}U_{M}embership_{2}008.pdf$.

[36]'EU Enlargement', accessed 25 May 2024, https://commission.europa.eu/strategy-and-policy/policies/eu-enlargement$_{e}n$.

selected countries after the 2007-2008 financial crisis. The period stops in 2022 with the Russian invasion of Ukraine.

Regarding the first block of regulations, an often used proxy for stock market depth is an initial public offering (IPO), which denotes a company's listing on a stock exchange and gives them more access to funding[37]. Since one of the primary objectives of the CMU project was to increase the EU capital markets' share of debt financing from 25% (in 2015) to 35%[38], it was necessary to double the volume of securities issues that arise from the IPO and private placement launches by encouraging non-bank investors to actively participate in the financial market. Additionally, the capital market capitalization to GDP ratio had to be raised from 75% to 100% in the European Union[39]. Therefore, the number of IPO issued in countries in the period of 2009-2022 would be observed with the intervention year of 2015, when the first related policy was implemented. According to the presumption, since the introduction of the supporting policies, the difference of the number of IPO in treated countries in the after period should be higher than in controlled ones.

Also, the effect of the first block of regulations could be measured by the earnings yield ratio, which is a common measurement applied in financial research to estimate the cost of new equity capital. The earnings yield is measured by the ratio of earnings per share divided by market price per share, so basically it is the reciprocal of the price-earnings (P/E) ratio (thus earnings yield is also referred to as earnings-price (E/P) ratio) and is expressed as a percentage[40]. The ratio represents the total capacity of companies to be successful in allocating resources to generate profits, in other words, it serves as an estimator of a firm's financing. As CMU was initially planned to reduce and ease access to companies' financing, this research will include the estimation of the E/P ratio in the

[37] 11, no. 2 (1 August 2016): 140–57, https://doi.org/10.1515/sbe-2016-0028.

[38] 'An-Agenda-for-Capital-Markets-Union.Pdf', accessed 26 May 2024, https://www.afme.eu/portals/0/globalassets/downloads/publications/an-agenda-for-capital-markets-union.pdf.

[39] Teodora Barbu and Adina Străchinaru, 'Capital Markets Union: Opportunities and Impact on the European Financial Market', Studies in Business and Economics 11 (19 November 2016), https://doi.org/10.1515/sbe-2016-0028.

[40] Rebecca Abraham, Judith Harris, and Joel Auerbach, 'Earnings Yield as a Predictor of Return on Assets, Return on Equity, Economic Value Added and the Equity Multiplier', Modern Economy 8, no. 1 (9 January 2017): 10–24, https://doi.org/10.4236/me.2017.81002.

period of 2009-2022 with the intervention year of 2015. The E/P ratio is supposed to decrease more in treated countries, compared to the controlled ones.

Focusing on the second block of regulation, as discussed by OECD, the regulations of securitization and covered bonds may serve as a means of transferring credit risk and giving banks the capital relief they need to free up capital and continue lending to the real economy[41]. According to the OECD, in addition to private placements, the company's securitization and covered bonds could facilitate the flow of credit, especially to SMEs, which would eventually influence the interest rates on business loans. Because of this assumption, this research will analyze the change in interest rates on business loans within the period of 2009-2022 and the intervention year of 2019 (according to the date of the latest covered bonds adopted regulation).

Therefore the left-side variables for the Diff-in-Diff regressions are:

[label=.]IPOs, number of issues in the selected country[42]; E/P ratio with an initial fixed rate of up to 1 year, extracted from the reciprocal of the P/E Ratio[43]; Interest Rate on New Other Bank Loans to non-financial corporations, with an initial fixed-rate period of up to 1 year and are less than or equal to EUR 1 mln for the treated sample (European Central Bank Data, Capital IQ Pro), and the average interest rate on business loans for controlled sample due to the limited data on diversification of interest rates on business loans in the controlled countries (Central Banks of the controlled countries)[44]; Interest Rate on New Other Bank Loans to non-financial corporations, with an initial fixed-rate period of up to 1 year and are greater than or equal to EUR 1 mln European[45], and the average interest rate on business loans for the controlled sample due to the limited data on diversification of interest rates on

[41] Iota Kaousar Nassr and Gert Wehinger, 'Non-Bank Debt Financing for SMEs: The Role of Securitisation, Private Placements and Bonds', FINANCIAL MARKET TRENDS 2014 (2014).

[42] 'SCREENER', accessed 27 May 2024, `https://emea1-apps.platform.refinitiv.com/web/apps/screenerapp`.

[43] 'SCREENER', accessed 3 June 2024, `https://emea1-apps.platform.refinitiv.com/web/apps/screenerapp`.

[44] 'CIQ Pro: Search Results', accessed 3 June 2024, `https://www.capitaliq.spglobal.com/web/client#search/searchResults?vertical=&q=country2Fregion`.

[45] Organization for Economic Co-operation and Development, 'Currency Conversions: US Dollar Exchange Rate: Average of Daily Rates: National Currency: USD for Euro Area (19 Countries)', FRED, Federal Reserve Bank of St. Louis (FRED, Federal Reserve Bank of St. Louis, 1 January 1979), `https://fred.stlouisfed.org/series/CCUSMA02EZA618N`.

business loans in the controlled countries (Central Banks of the controlled countries, Appendix I);

And Control Variables[46]:

[label=.]Real GDP in billion USD, converted to EUR according to the US Dollar Exchange Rate: Average of Daily Rates USD for Euro Area; Real GDP Growth in percent change by expenditure, over the previous year; Nominal GDP, in billion USD, converted to EUR according to the US Dollar Exchange Rate: Average of Daily Rates USD for Euro Area; Population in a million, applied to the number of all individuals within the stated geographical area; Population Growth as a percent change in the total number of individuals within the stated geographical area, over the previous year; GDP per Capita in USD, converted to according to the US Dollar Exchange Rate: Average of Daily Rates USD for Euro Area; Real Private Consumption Growth, which is a percent change in real household expenditure on goods and services, over the previous year; Real Government Consumption Growth, which is a percent change in real government expenditure on consumption goods and services, over the previous year; Real Gross Fixed Investment Growth, which is a percent change in real residential and non-residential fixed investment expenditure, over previous year; Industrial Production Growth, which is a percent change in real output produced by manufacturing, mining, electric, and gas industries, over previous year;

3.3 The Main Regression

[46]'CIQ Pro: Search Results'.

This research includes four main difference-in-differences regressions:

1. Number of IPO

$$\text{Number of IPO} = \beta_0 + \beta_1 \cdot \text{treated}_i + \beta_2 \cdot \text{Post\_Intervention}_t + \beta_3 \cdot \text{Treated\_Intervention}(i,t) \tag{1}$$

2. E/P Ratio

$$\text{E/P Ratio} = \beta_0 + \beta_1 \cdot \text{treated}_i + \beta_2 \cdot \text{Post\_Intervention}_t + \beta_3 \cdot \text{Treated\_Intervention}(i,t) \tag{2}$$

3. Interest Rate on New Other Bank Loans up to EUR 1 mln

$$\text{Interest Rate on New Other Bank Loans up to EUR 1 mln} = \beta_0 + \beta_1 \cdot \text{treated}_i + \beta_2 \cdot \text{Post\_Intervention}_t + \beta_3 \cdot \text{Treated\_Intervention}(i,t) \tag{3}$$

4. Interest Rate on New Other Bank Loans over EUR 1 mln

$$\text{Interest Rate on New Other Bank Loans over EUR 1 mln} = \beta_0 + \beta_1 \cdot \text{treated}_i + \beta_2 \cdot \text{Post\_Intervention}_t + \beta_3 \cdot \text{Treated\_Intervention}(i,t) \tag{4}$$

1. Number of IPO

$$\text{Number of IPO} = \beta_0 + \beta_1 \cdot \text{treated}_i + \beta_2 \cdot \text{Post\_Intervention}_t + \beta_3 \cdot \text{Treated\_Intervention}(i,t) \tag{5}$$

2. E/P Ratio

$$\text{E/P Ratio} = \beta_0 + \beta_1 \cdot \text{treated}_i + \beta_2 \cdot \text{Post\_Intervention}_t + \beta_3 \cdot \text{Treated\_Intervention}(i,t) \tag{6}$$

3. Interest Rate on New Other Bank Loans up to EUR 1 mln

$$\text{Interest Rate on New Other Bank Loans up to EUR 1 mln} = \beta_0 + \beta_1 \cdot \text{treated}_i + \beta_2 \cdot \text{Post\_Intervention}_t + \beta_3 \cdot \text{Treated\_Intervention}(i,t) \tag{7}$$

4. Interest Rate on New Other Bank Loans over EUR 1 mln

$$\text{Interest Rate on New Other Bank Loans over EUR 1 mln} = \beta_0 + \beta_1 \cdot \text{treated}_i + \beta_2 \cdot \text{Post\_Intervention}_t + \beta_3 \cdot \text{Treated\_Intervention}(i,t) \tag{8}$$

The treated_i denotes treated countries, $\text{Post\_Intervention}_t$ applies to the controlled sample after the intervention period, and $\text{Treated\_Intervention}_{i,t}$ applies to the treated sample after the intervention. Therefore, the coefficient of interest would be β_3, the coefficient of interaction of the treated countries in the post-intervention period. The intervention year for regressions 1 and 2 is 2015, and the intervention year for regressions 3 and 4 is 2019 due to the dates of relevant regulations being adopted.

Additionally, due to the lack of necessary data on the diversification of interest rates to business loans, in the 3d and 4th regressions, the controlled group, unlike the treated one, has the general interest rate on business loans to nonfinancial corporations for all kinds of businesses. To make the model more robust, this study also considers including control variables to measure the dependent variables and fixed effects for country and year. All of the control variables, mentioned above, were extracted from the SP Capital Pro country's profile, adjusted for each country, which in the section Economic Data contained the seasonally adjusted identificators for market size and growth. To avoid multicollinearity, the Variance Inflation Factor (VIF) test was applied. The test determines to which degree an independent variable's behavior is inflated or impacted by its interaction or correlation with other independent variables in the dataset. When the VIF score is lower than 1, it indicates that variables are not correlated, and if the VIF is between 1 and 5, the correlation is moderate. In case VIF is between 5 and 10, the correlation between variables is high and the multicollinearity is likely to be present in the model. The significant multicollinearity is considered when the VIF score is more or equal to 10, which needs to be adjusted in model[47]. After the conduction of the VIF test on all of the described controlled variables (the result presented in Table 1) based on the VIF results, the Nominal GDP in EUR, Real GDP in EUR, and Real GDP Growth showed a VIF score of more than 10, indicating significantly high multicollinearity. However, as the Real GDP of a certain country is an important variable to consider, the other VIF test was conducted excluding Nominal GDP in EUR and Real GDP Growth (Table 2). The result represented all the variables not exceeding the VIF of 10. Except for Population

[47]Noora Shrestha, 'Detecting Multicollinearity in Regression Analysis', American Journal of Applied Mathematics and Statistics 8 (15 June 2020): 39–42, https://doi.org/10.12691/ajams-8-2-1.

and Real GDP in EUR, the score of other variables is close to 1, which indicates the absence of collinearity.

	feature	VIF
0	Real_GDP_Growth_(%)	13.773915
1	Population_(M)	8.109920
2	Population_Growth_(%)	1.989403
3	Real_Private_Consumption_Growth_(%)	11.136182
4	Real_Government_Consumption_Growth_(%)	1.392515
5	Real_Gross_Fixed_Investment_Growth_(%)	2.165046
6	Industrial_Production_Growth_(%)	2.124623
7	Nominal_GDP_(EUR,B)	43.873515
8	Real_GDP_(EUR,B)	39.043997
9	GDP_Per_Capita_(EUR)	1.963032

Table 1: Number of IPOs with Control Variables

The relationship between Real GDP, indicating economic growth, and the country's population has been controversial with some authors disagreeing on the actual effects of population expansion on economic growth. Also, the correlation between these two variables may depend on the country, as in low-income countries the correlation between population enhancement and economic growth can be negative, meanwhile, high-income countries may face the opposite relationship[48]. Therefore, this research would include as control variables all of the variables included in the second VIF test, and instead of the Population Growth would include Population only.

[48] E. Wesley F. Peterson, 'The Role of Population in Economic Growth', Sage Open 7, no. 4 (1 October 2017): 2158244017736094, https://doi.org/10.1177/2158244017736094.

	feature	VIF
0	Population_(M)	7.169661
1	Population_Growth_(%)	1.650647
2	Real_Private_Consumption_Growth_(%)	1.457051
3	Real_Government_Consumption_Growth_(%)	1.389520
4	Real_Gross_Fixed_Investment_Growth_(%)	1.195975
5	Industrial_Production_Growth_(%)	1.327142
6	Real_GDP_(EUR,B)	7.910859
7	GDP_Per_Capita_(EUR)	1.813234

Table 2: Number of IPOs with Control Variables

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4 Results

In this chapter are presented the results of the dependent variables mentioned above. For each dependent variable, there is a separate table with presented findings, which include four models: simple diff-in-diff, diff-in-diff with control variables, diff-in-diff with fixed effects, and the combined model which includes all of the adding to the original regression.

4.1 Results of the IPO Issues Analysis

The first simple diff-in-diff regression regarding the IPO issues in the sample showed a statistically insignificant decrease by on average 0.65 of the number of IPOs after the intervention in the treated countries (Table 4). When adding the control variables to the regression, the coefficient of interest showed an insignificant 1.30 increase in treated countries of IPO issues after the intervention. However, the coefficient of the number of population in the second model, holding all other variables constant, is associated with a significant at 5% level increase by approximately 0.2 of the IPO issues with the population increasing by 1 million. Including the fixed effects in the regression did not provide much significance, with treated_\intervention coefficient indicating an insignificant decrease by -0.65. However, the 4th model with fixed effects and control variables showed an increase in the number of IPOs after intervention in the control countries by 5.57, significant at 10%, while the coefficient for treated countries in the after period showed a statistically insignificant increase by 2.49. The 4th model also identified the negative impact of a 1% increase in private consumption, holding other variables constant, leading to an approximately 0.0042 decrease in the number of IPOs, with a coefficient significant at 1%. The increase in real GDP also showed a negative effect as an increase in 1 billion in real GDP is associated with the number of IPOs decreasing by 0.12 holding all the other variables constant, which could be a result of other economic dynamics.

Table 3: Number of IPO Issues in Countries

	DiD	DiD with CV	DiD with FE	DiD with FE and CV
Real GDP, EUR, bn		0.0191*		-0.1203***
		(0.0103)		(0.0230)
GDP per Capita, EUR		-0.0000		-0.0000
		(0.0002)		(0.0006)
Industrial Production Growth, %		0.1878**		-0.0299
		(0.0886)		(0.1040)
Real Government Consumption Growth, %		-0.0021		0.0284
		(0.1754)		(0.1770)
Real Gross Fixed Investment Growth, %		0.0504		0.0049
		(0.0656)		(0.0691)
Real Private Consumption Growth, %		-0.0002		-0.0042***
		(0.0002)		(0.0014)
Population, M		0.2036**		3.1944***
		(0.0798)		(0.8630)
Intercept	5.1667***	-1.2124	-2.4424	-10.3434**
	(1.7901)	(2.0771)	(3.4830)	(4.3212)
Treated	0.7593	-2.9483	1.2960	-7.6586
	(2.4602)	(2.0987)	(2.4881)	(7.1480)
Post Intervention	-2.4635	2.9483	1.2960	5.5707*
	(2.3680)	(2.0987)	(2.4881)	(3.2685)
Treated_Intervention	-0.6568	1.3018	-0.6568	2.4911
	(3.2545)	(2.7839)	(2.5124)	(3.0279)
R-squared	0.01	0.34	0.48	0.55
No. observations	238	238	238	238

Notes: Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

4.2 Results of the E/P Ratio Analysis

All the analyses, which considered the E/P ratio, included fewer observations due to the omitted data for the controlled group, particularly Albania and Georgia. Additionally, it excludes Bulgaria in the treated group as in 2011 its Price-earnings ratio (from which the E/P ratio was extracted) was 0.45 after the impact of the global financial crisis. At that time Bulgaria entered the crisis with the biggest current account deficit in emerging Europe and substantial currency mismatches on balance sheets[49]. Therefore, as the country's E/P ratio was a huge outlier among the treated sample, it was not observed to preserve the parallel trend assumption needed for a good estimate of the average treatment of diff-in-diff[50]. In a simple diff-in-diff of E/P ratio, a treated_intervention, indicated a decrease of 1.51 percentage points for the treated group compared to the control one after the intervention, which aligns with the presumption of CMU Action Plan effect on firm financing (Table 5). However, the coefficient is not statistically significant at any level. The same applies to the coefficient of interest in the model using control variables, fixed effects, and combined, as the Earnings-price ratio decreases for the treated group after the intervention but the coefficient remains insignificant. The only significant coefficient for the treated group is in a pre-intervention period in the model using diff-in-diff with fixed effects, which indicates the Earnings-price ratio being on average 4.5 percentage points higher for the treated group at the 1% significance level. Among the control variables, when including the controls and fixed effects for country and year, the increase of 1% in real government consumption growth is associated with an average 0.2 percentage point decrease in the Earnings-price ratio, and it is significant at 10% level.

[49]Bas B. Bakker and Christoph A. Klingen, 'How Emerging Europe Came Through the 2008/09 Crisis: An Account by the Staff of the IMF's European Department', in How Emerging Europe Came Through the 2008/09 Crisis (International Monetary Fund, 2012), https://www.elibrary.imf.org/display/book/9781616353810/9781616353810.xml.

[50]Gábor Békés and Gábor Kézdi, Data Analysis for Business, Economics, and Policy (Cambridge University Press, 2021).

Table 4: Earnings-Price Ratio in Countries

	DiD	DiD with CV	DiD with FE	DiD with FE and CV
Real GDP, EUR, bn		-0.0000		0.0000
		(0.0001)		(0.0002)
GDP per Capita, EUR		0.0000		0.0000
		(0.0000)		(0.0000)
Industrial Production Growth, %		-0.0001		0.0005
		(0.0006)		(0.0008)
Real Government Consumption Growth, %		-0.0018		-0.0020*
		(0.0011)		(0.0012)
Real Gross Fixed Investment Growth, %		0.0002		-0.0000
		(0.0004)		(0.0005)
Real Private Consumption Growth, %		-0.0000		-0.0000
		(0.0000)		(0.0000)
Population, M		0.0006		-0.0017
		(0.0005)		(0.0056)
Intercept	0.0813***	0.0702***	0.0422**	0.0401
	(0.0097)	(0.0144)	(0.0209)	(0.0288)
Treated	0.0033	0.0077	0.0455***	0.0580
	(0.0128)	(0.0143)	(0.0159)	(0.0479)
Post Intervention	0.0176	0.0203	0.0078	0.0061
	(0.0128)	(0.0135)	(0.0159)	(0.0231)
Treated_Intervention	-0.0153	-0.0151	-0.0153	-0.0164
	(0.0169)	(0.0172)	(0.0159)	(0.0177)
R-squared	0.01	0.05	0.24	0.28
No. observations	196	196	196	196

Notes: Standard errors in parentheses. * $p<.1$, ** $p<.05$, *** $p<.01$

4.3 Results of Interest Rates on New Other Bank Loans less or equal to EUR 1 mln Analysis.

The analysis of Interest Rates on New Other Bank Loans to non-financial corporations, with an initial fixed-rate period of up to 1 year and less than or equal to EUR 1 mln showed a difference of interest rate being 1.8 percentage points lower in the treated group compared to the control one before the intervention in the simple diff-in-diff model, and the coefficient is statistically significant at 1% level (Table 6). The control group experienced an approximately 1.56 percentage points decrease in interest rate for businesses up to 1 mln EUR after the intervention, and the result is significant at 10% level.

After including fixed effects for country and year, the significant at 5% level decrease of this type of interest rate was captured for the control group by 1.73 percentage points after the intervention. The first statistically significant coefficient of interest for the treated group after the intervention was also noticed by 1.44 percentage point decrease, significant at 10% level, but using this model before the intervention, the treated group had an interest rate already higher than the control group by approximately 1.7 percentage points, significant at 5% level.

When analyzing the results with control variables only, the increase of one unit (holding all other variables constant) in the Real GDP, GDP per Capita, Industrial Production Growth, Real Government Consumption Growth, and Real Private Consumption Growth represent the decrease in interest rate for business loans up to 1 mln EUR or equal, which is significant at 1% level. After adding the fixed effects and control variables, the changes in GDP per Capita, Industrial Production Growth, and Real Government Consumption Growth contribute to the significant at 1% level decrease in interest rate. Especially, the change by 1% in Real Government Consumption Growth is associated with decrease in interest rate by 0.15 percentage points, significant at 1%.

Table 5: Interest Rates on New Other Bank Loans less or equal to 1 EUR mln

	DiD	DiD with CV	DiD with FE	DiD with FE and CV
Real GDP, EUR, bn		-0.0170***		-0.0030
		(0.0036)		(0.0069)
GDP per Capita, EUR		-0.0003***		-0.0005***
		(0.0001)		(0.0002)
Industrial Production Growth, %		-0.1000***		-0.1258***
		(0.0288)		(0.0294)
Real Government Consumption Growth, %		-0.1633***		-0.1567***
		(0.0624)		(0.0556)
Real Gross Fixed Investment Growth, %		-0.0082		-0.0158
		(0.0213)		(0.0195)
Real Private Consumption Growth, %		-0.0004***		-0.0005
		(0.0001)		(0.0004)
Population, M		0.1455***		0.3784
		(0.0278)		(0.2644)
Intercept	7.0000***	4.2423***	3.9036***	3.6759***
	(0.4682)	(0.3015)	(0.9959)	(1.2768)
Treated	-1.8000***	0.9140	1.7068**	0.9271
	(0.6435)	(0.6312)	(0.7354)	(0.8275)
Post Intervention	-1.5625*	-0.6288	-1.7300**	0.0061
	(0.8760)	(0.7263)	(0.6926)	(0.0231)
Treated_Intervention	-1.4431	-0.4547	-1.4431*	0.1860
	(1.2039)	(0.9973)	(0.8004)	(0.8320)
R-squared	0.12	0.44	0.66	0.73
No. observations	238	238	238	238

Notes: Standard errors in parentheses. * $p<.1$, ** $p<.05$, *** $p<.01$

4.4 Results of Interest Rates on New Other Bank Loans more or equal to EUR 1 mln Analysis.

The analysis of the final dependent variable which focused on Interest Rates on New Other Bank Loans to non-financial corporations, with an initial fixed-rate period of 1 year of more or equal to EUR 1 mln, showed a significant at 1% level difference of interest rate being approximately 2.04 percentage points lower compared to the control group before the intervention in a diff-in-diff regression (Table 7). After the intervention, the interest rates on over 1 mln EUR loans in the treated group decreased additionally by approximately 0.92 percentage points in comparison to the control group. The coefficient of interest appeared to be not statistically significant at any level.

Including control variables, fixed effects, and combining both of the models did not show any significant coefficient of interest for interest rates on business loans to more or equal 1 mln EUR in treated countries. However, when including fixed effects, in the post-intervention period, the control sample experienced a significant at 1% average change of interest rates by 1.79 percentage points.

Similarly to the interest rates on business loans on up or equal to 1 EUR mln, the 1 unit increase in control variables, namely in Real GDP, GDP per Capita, Industrial Production Growth, Real Government Consumption Growth, and Real Private Consumption Growth is associated with a decrease of interest rates, which is significant at 1% level except for Real Government Consumption Growth being significant at 10% level. When including control variables for the diff-in-diff with fixed effects, the 1% increase in GDP per Capita and Industrial Production Growth contributes to the decrease of interest rate to business loans on more or equal to 1 mln EUR, which is significant at 1% level.

5 Research Discussion

The analysis of the dependent variables after the relevant regulations towards easing the companies' access to the capital market and diversifying the options of funding did not show the expected significant results. This chapter discusses in detail whether the finding

Table 6: Interest Rates on New Other Bank Loans more or equal to 1 EUR mln

	DiD	DiD with CV	DiD with FE	DiD with FE and CV
Real GDP, EUR, bn		-0.0185***		-0.0057
		(0.0036)		(0.0064)
GDP per Capita, EUR		-0.0003***		-0.0004***
		(0.0001)		(0.0002)
Industrial Production Growth, %		-0.0992***		-0.0848***
		(0.0294)		(0.0276)
Real Government Consumption Growth, %		-0.1175*		-0.0057
		(0.0636)		(0.0064)
Real Gross Fixed Investment Growth, %		-0.0008		-0.0080
		(0.0217)		(0.0183)
Real Private Consumption Growth, %		-0.0004***		-0.0006
		(0.0001)		(0.0004)
Population, M		0.0006		-0.0017
		(0.0005)		(0.0056)
Intercept	6.1000***	3.4472***	1.2593	0.9338
	(0.4773)	(0.3072)	(0.8910)	(1.972)
Treated	-2.0444***	0.8440	3.2948***	2.9858
	(0.6560)	(0.6432)	(0.6579)	(2.0405)
Post Intervention	-1.3812	-0.4508	-1.7968***	0.0389
	(0.8930)	(0.7401)	(0.6197)	(0.7759)
Treated_Intervention	-0.9243	-0.0676	-0.9243	0.3721
	(1.2273)	(1.0162)	(0.7161)	(0.7801)
R-squared	0.10	0.42	0.73	0.76
No. observations	238	238	238	238

Notes: Standard errors in parentheses. * p<.1, ** p<.05, *** p<.01

can be supported by the previously conducted studies and/or if it aligns with the market conditions that occurred in the time frame of the research. Also, the chapter mentions the limitations of the study and provides insight into how more robust results could be possibly achieved in the future research.

5.1 The Research Findings in Consensus with the Existing Literature

After analyzing the Number of IPOs, Earnings-price ratio, and the Interest Rate on New Other Bank Loans to non-financial corporations of up to and more than 1 EUR mln, the only significant change for treated countries after the implementation of CMU Action Plan relevant regulations appeared to be in the Interest Rate on New Other Bank Loans to non-financial corporations of up or equal to 1 EUR mln. In the model with fixed effect for country and year, the average change of interest rate after the intervention in treated countries decrease by -1.44 percentage points and is significant at 10

The findings in the research regarding the number of IPOs are in general consistent with the Lehmann's research of analysing the progress of the development of Capital Markets Union in Emerging Europe, in particular EU-11 countries. The research discovered the issuance volumes and trading activity on local equity markets decreasing, until the period of 2019. The only countries with significant share turnover percentages remained Poland, Hungary, and the Czech Republic, where trading is concentrated in a small number of companies. Many of these companies were the product of the early waves of market-based listings. The low liquidity, which remains on these markets, increases the cost of equity borrowing and makes it harder to attract new issuers and institutional investors since it is difficult to trade without causing significant price movements. Additionally, the research pointed on the trend of de-listing and share-buybacks in the region during 2017-2019, meanwhile issuance and trading are becoming more concentrated in a small number of larger corporations and exchanges.

The Global Pandemic of 2020 brought the additional obstacles to increasing public investment in the Europe in general, with the regions IPO activity being the slowest during the first half of 2020 compared to the previous five years . However, at the same time, a few market industries experienced growth during the pandemic in the areas of biotech, e-commerce, and technology. Therefore, new players entered the market in the CEE region, which had in 2020 the largest listing value of EUR 4.59 billion. However, a substantial portion of the issuance originated from a single company in Poland, meaning the overall volume is not reflected in the number of IPOs.

The research findings indicate that the Earnings-Price (E/P) ratio in CEE was not significantly influenced by the CMU regulations. This aligns with previous studies showing that corporate funding in the EU-11 is heavily bank-dependent due to underdeveloped equity markets . What is more, in general, the EU capital markets' funding capacity showed a downward trend in 2020- 2021 . Limited cross-border investment in the region further negatively impacted the E/P ratio. These factors collectively suggest structural and market challenges could affect the E/P ratio in CEE not changing significantly, after introducing the regulations.

Regarding the influence of standardized saucerization and covered bonds on the banks interest rates, according to the European Covered Bond Council, in comparison to Western Europe, covered bonds are comparatively new and less developed in CEE region. Indeed, significant covered bonds markets can be found in Poland, Romania, and Slovakia, where regulatory and legal changes have been made on national level to promote the market expansion . However, it should be taken into consideration that covered bonds serve as a long-term funding source for banks, by which they can reduce their fundraising expenses and provide borrowers with less expensive funding. The findings of the research also found interest rates in CEE countries decreasing at 10% level of significance, when controlling for the country and year. Potentially, the further development of the covered bond market in CEE could potentially result in lower interest rates on banks' business loans.

5.2 Limitations of the Research in Relation to Methodology

This research specifically examined the impact of the implemented regulations from the Capital Markets Union Action Plan 2015 on Central Eastern European countries. It is worth noting that if the study had included Western European countries, the findings might have been more significant and robust. However, the Western countries are being exposed to the same treatment of the CMU Action Plan introduction, meanwhile the control sample, despite sharing economic and common historical background, was not directly influence by the CMU Action Plan 2015. However, even within the EU-11 member states the degree and mode of CMU Action Plan implementation may differ, which makes cross-national comparisons more difficult among the treated countries. Despite having much in common, the variations in the number of firms and sectors affect how broadly applicable the results are within Central Eastern European countries.

The insignificance of coefficients is likely due to the small sample size of 17 countries (14 for the Earnings-price ratio measurement), which reduced the power of the statistical tests. However, the chosen sample for as comparable as possible to the treated group as described above. Additionally, the lack of variation in independent variables when including fixed effects for country and year might have led to an overcontrolled issue. On the other hand, if the model was overcontrolled, it might show significant coefficient in the post-intervention period for treated countries while using simple Difference-in-Differences regressions.

The CMU Action Plan 2015 was initially discussed with a strong emphasis on resolving financial issues that arose from the 2008 financial crisis. However, the chosen period for the research from 2009 until 2022 includes many other significant economic events, including the European sovereign debt crisis, Brexit, and the COVID-19. Additionally, when analysing interest rates with intervention of regulations in 2019, there are only a few years' worth of post-intervention data. This brief period of time might not be enough to fully access the implications of the policy changes, particularly in the case of financial instruments which could have long-term consequences. However, the chosen time period of 2009-2022, despite its challenges, was suitable for analysing the CMU Action Plan

2015 on CEE region as most of the countries, excluding Croatia, had acceded to the EU by 2009. During this period, it is possible to observe the CEE countries' continuous shift from centrally planned to market economies and the CMU plan was about to ease this transition by enhancing access to diverse funding and integrating the EU's financial markets. Therefore, for having more robust results whether the regulations of CMU Action Plan 2015 eased access and diversified the firms' funding, the long-term research of analysing the same variables can be implied in the future.

6 Policy Implications

Initiatives such as the CMU Action Plan 2015 may have consequences that do not become apparent for years. The Action Plan itself was reviewed in 2017, and the Mid-Term Review included the timetable for new initiatives. Among them were the establishment of pan-European personal pension plan to assist individuals in funding[51]. In addition, the Commission kept on working to improve the integrated capital markets supervisory framework, male listed SMEs and investment firms' regulations more proportionate. The new SME Listing Act, already mentioned in the Implemented Regulations and Research Area section of this research, aims to lower expenses and bureacraucy specifically for European SMEs, facilitating greater access to finance soursess. It would be the direct act to diversify and more efficiently complement the companies' available funding sources by encouraging them to list and remain on EU public markets[52].

Based on the results of this research, similarly to the Lehmann's one, the illiquidity of Central Eastern European markets could be accessed via consolidating the stock exchange and thus pooling the trades in one area. This issue was already addressed in the updated version of Capital Markets Union Action Plan of 2020. One of the initiatives of the renewed action plan is to create a single point of access (European Single Access Point) for corporate data related to finances and sustainability which is supposed to facilitate investor access throughout the EU. The ESAP should increase a company's visibility to foreign investors, lower the search and processing costs for users, and promote cross-border investments. The ESAP platform is planned to become accessible in the summer of 2027[53].

The other issue that the CEE region continues to face, apart from augmenting market liquidity, is the need to fortify market infrastructure within the countries. In the EU-11,

[51]'Completing the Capital Markets Union: Building on the First Round of Achievements', Text, European Commission - European Commission, accessed 2 June 2024, https://ec.europa.eu/commission/presscorner/detail/en/IP$_1$7$_1$529.

[52]'Listings on European Stock Exchanges'.

[53]'Easy Access to Corporate Information for Investors: Provisional Agreement Reached on the European Single Access Point (ESAP)', accessed 2 June 2024, https://www.consilium.europa.eu/en/press/press-releases/2023/05/23/easy-access-to-corporate-information-for-investors-provisional-agreement-reached-on-the-european-single-access-point-esap/.

the infrastructure remains fragmented as each exchange is linked to a central securities depository. These depositories are mainly limited to their home markets, though, and resolving exchange transactions can be difficult. To lessen the fragmentation, the Central Counterparties (CCPs), which centralize and manage counterparty risk being a middleman in financial transactions, can combine different central securities depositories into a more centralized infrastructure. The renewed version of CMU 2020 strengthens the regulatory and supervisory framework for CCPs, which includes actions to improve CCP oversight to better control risks and guarantee financial market stability[54].

In general, the European Commission is still in the process of developing a single market for capital across the EU. As the response to the Action Plan of 2015 has already been addressed, its renewed version is still in the process of implementation. Therefore, the gradual implementation of capital markets union packages should be the main policy goal to follow for the Central Eastern European member states.

[54]What the EU Is Doing to Deepen Its Capital Markets', accessed 2 June 2024, https://www.consilium.europa.eu/en/policies/what-the-eu-is-doing-to-deepen-its-capital-markets/.

7 Conclusion

Investigating the effects of the Capital Markets Union Action Plan of 2015 on the financial markets of Central Eastern European countries was the main goal of this study. Specifically, it investigated whether the adoption of regulations regarding the European Long-Term Investment Fund Regulation additionally with the Prospectus Regulation, and Standardized Securitisation Regulation together with the Covered Bonds Framework facilitated access to public markets and reduced the cost of funding for European companies in this region. The results found a statistically insignificant effect on IPO issues after the introduction of regulations in the CEE member states. However, the positive association between the population size and IPO activity indicates that larger economies have a higher potential for increasing the publicly listed companies on domestic markets. The analysis of the Earnings-price ratio was not statistically significant, although it indicated a decrease for the treated group, following the intervention, which was consistent with the hypothesis of better financing conditions. This suggests that although there might have been some influence, it was insufficient to confirm the hypothesis. The cost of small business loans in CEE countries appears to have been positively impacted by CMU legislation, as seen by the significant at 10 percent decrease in interest rates observed for new other bank loans to nonfinancial corporations up or equal to 1 EUR million. However, the effect on larger loans of more than or equal to 1 mln EUR was less evident.

The small sample size and lack of variation in a few independent variables could have constrained the robustness of the findings. Furthermore, certain rules' very brief post-intervention periods might not fully reflect their implications, originally meant for the long-term. To more thoroughly reflect the long-term effect of the CMU Action Plan of 2015 or its renewed version of 2020, future studies should consider observing the longer time period.

In conclusion, the overall effect of the CMU Action Plan of 2015 on European companies in the CEE region is not immediately evident, according to the conducted research. It could have had positive implications on small business loans, but generally, its influence on capital markets activities does not imply eased access to funding for companies.

To fully achieve the potential benefits of a single European capital market for firms' decreased financing and eased funding, ongoing efforts to improve market infrastructure, specific policy measures, and market integration are necessary.

8 Appendix I

References to controlled countries' Central Banks on interest rates:

1. Albania:

   'Interest Rates'. Accessed 28 May 2024.

   https://www.bankofalbania.org/Markets/Interest_rates/

2. Bosnia and Hercegovina:

   'Interest Rates Statistics'. Accessed 28 May 2024.

   https://www.cbbh.ba/content/read/883?lang=en

3. Georgia:

   The National Bank of Georgia. *'Statistics Data'. Accessed 28 May 2024.*

   https://nbg.gov.ge/en/statistics/statistics-data

4. North Macedonia:

   'English - Interest Rates Statistics'. Accessed 3 June 2024.

   https://www.nbrm.mk/statistika_na_kamatni_stapki-en.nspx

5. Serbia:

   'Interest Rates'. Accessed 3 June 2024.

   https://www.nbs.rs/en/ciljevi-i-funkcije/monetarna-politika/kamatne-stope/

6. Turkey:

   The Central Bank of the Republic of Turkey. *"Interest Rates".*

   https://www.tcmb.gov.tr/

7. Ukraine:

   National Bank of Ukraine. *'Financial Sector Statistics'. Accessed 3 June 2024.*

   https://bank.gov.ua/en/statistic/sector-financial

9 Appendix II

All the technical part of the research are available via the GitHub Depository:

`https://github.com/SofiyaLyn/Thesis.git`

Additional graphs of dependent variables:

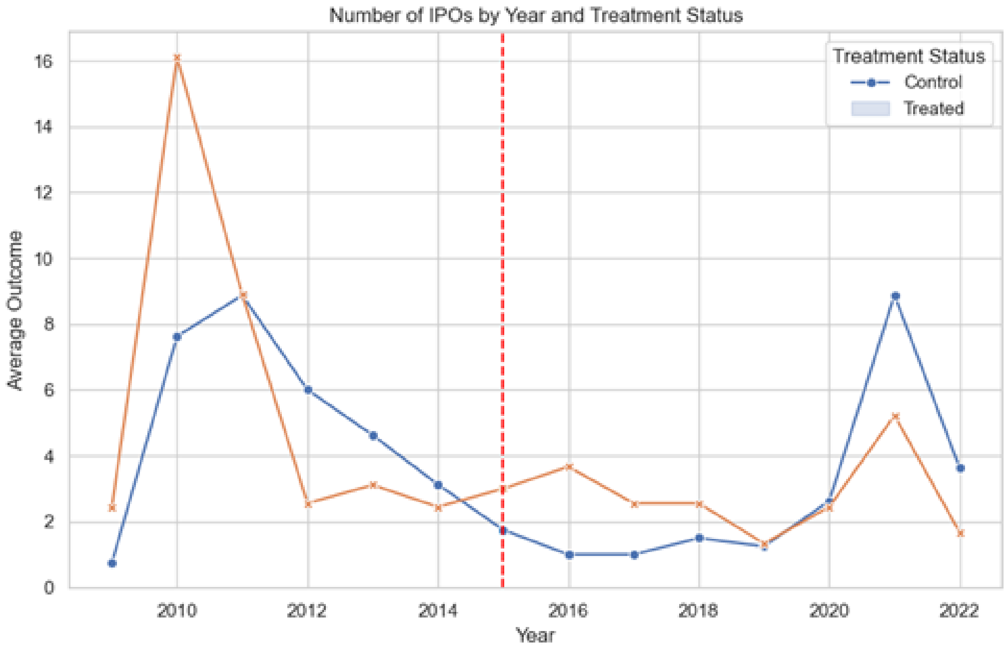

Figure 1: Number of IPOs simple Diff-in-Diff

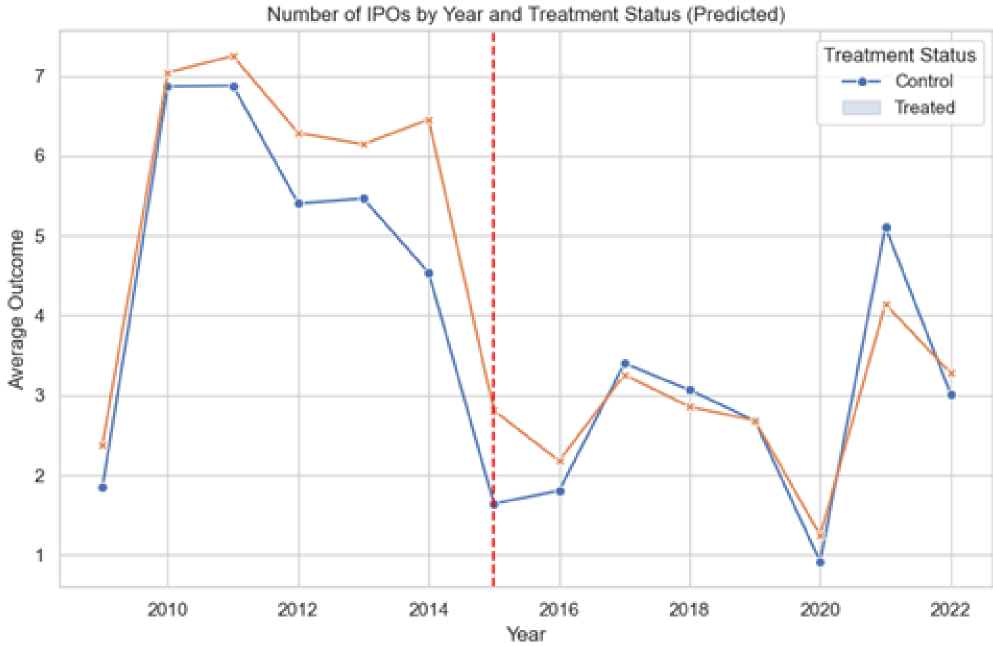

Figure 2: Number of IPOs with Control Variables

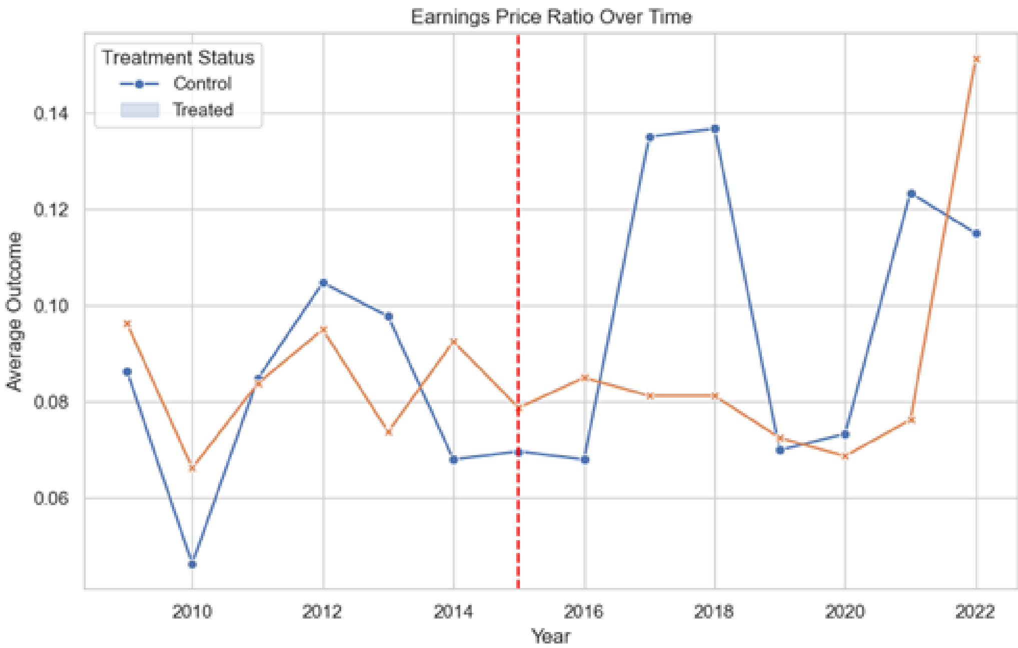

Figure 3: Earnings-Price Ratio simple Diff-in-Diff

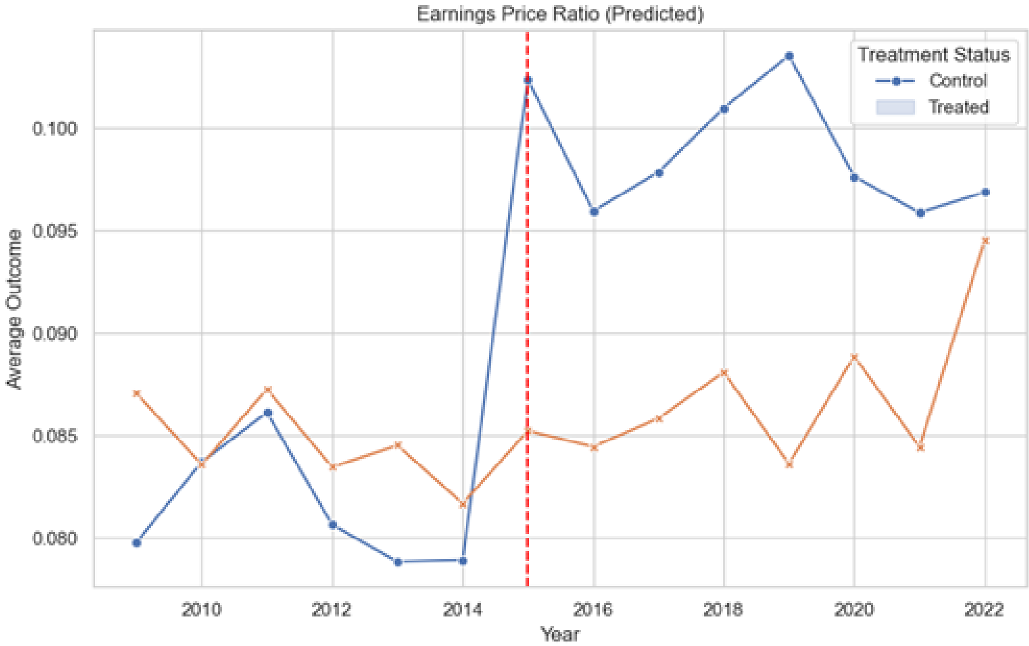

Figure 4: Earnings-Price Ratio with Control Variables

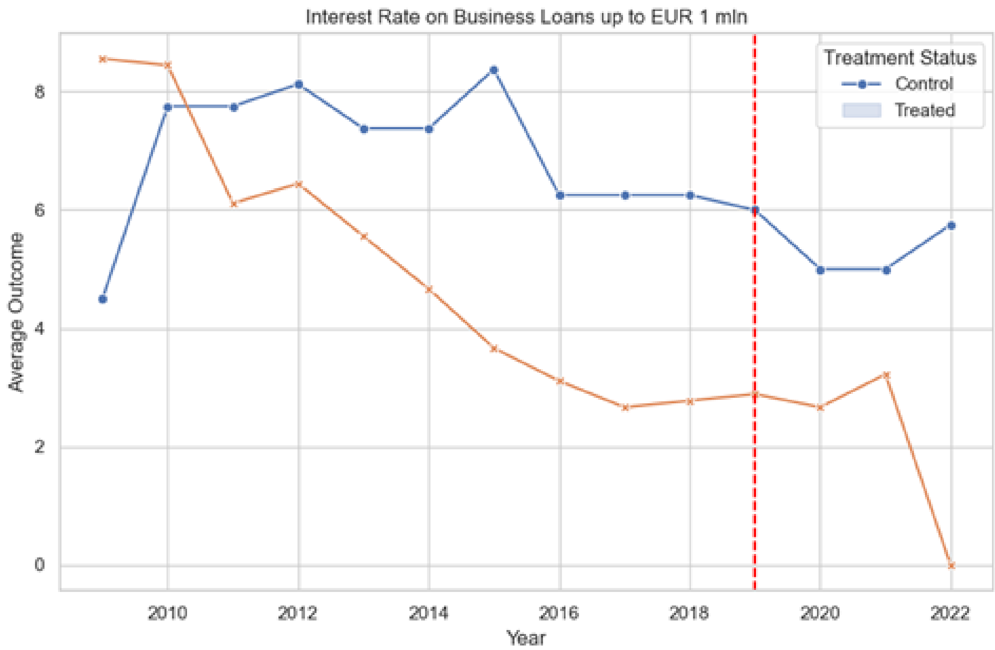

Figure 5: Interest Rates on New Other Bank Loans less or equal to EUR 1 mln, simple Diff-in-Diff

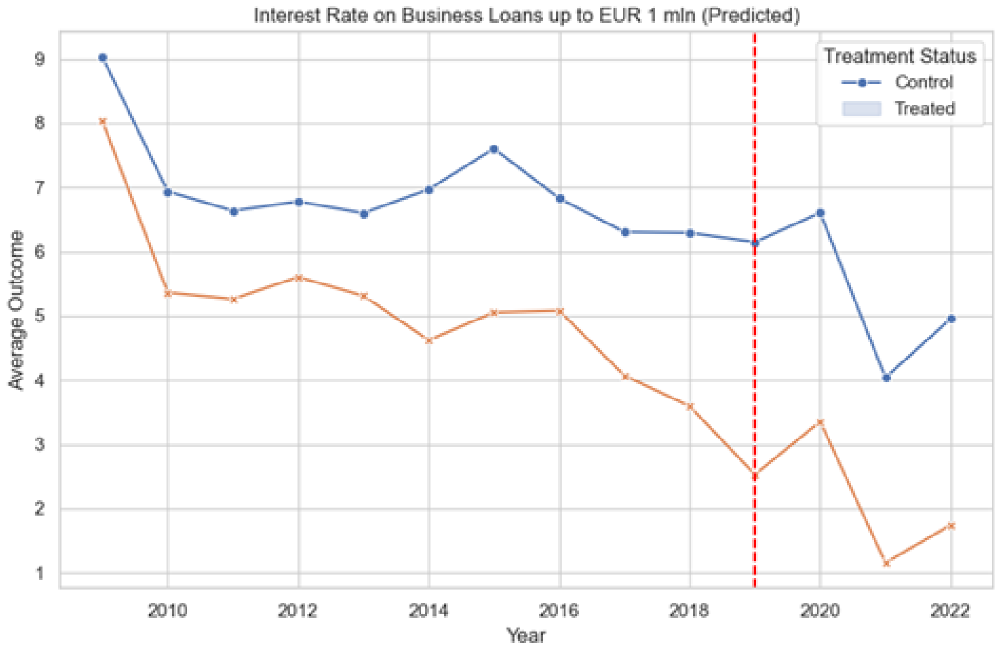

Figure 6: Interest Rates on New Other Bank Loans less or equal to EUR 1 mln Analysis with Control Variables

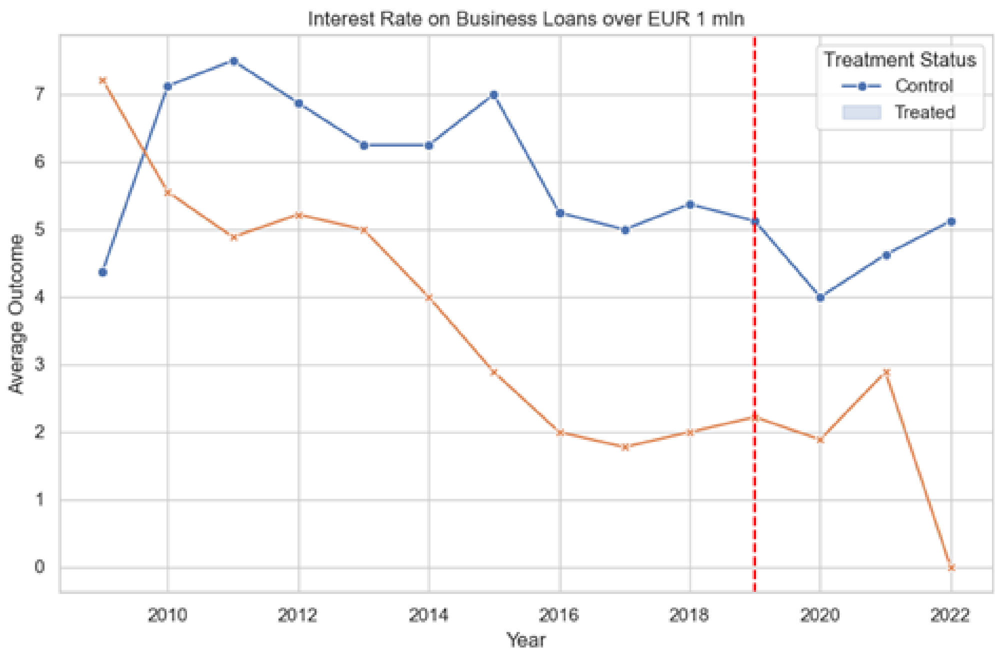

Figure 7: Interest Rate on New Other Bank Loans more or equal to EUR 1 mln, simple Diff-in-Diff

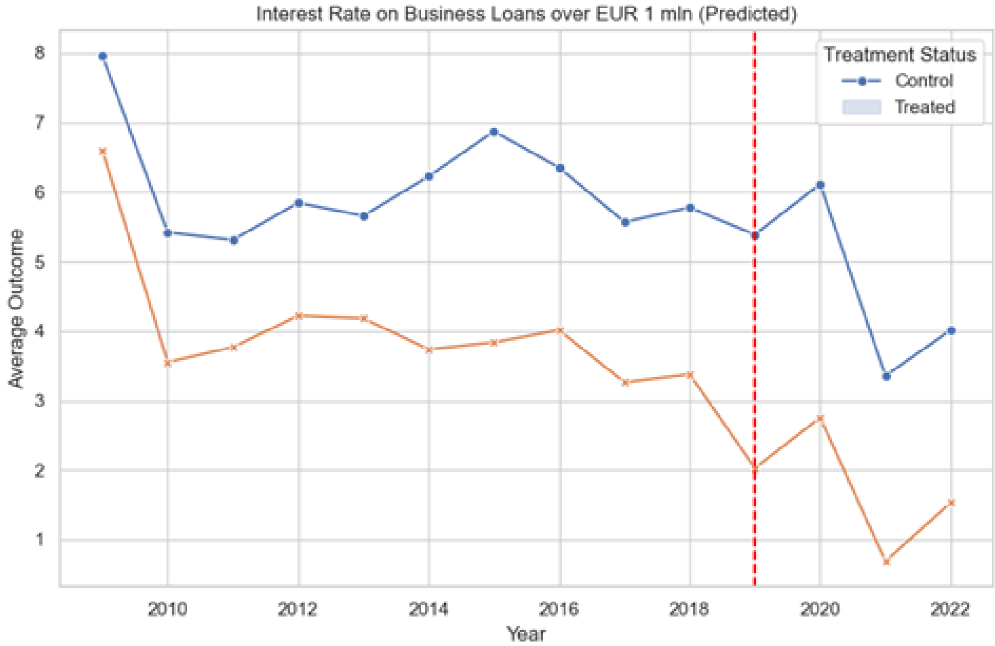

Figure 8: Interest Rate on New Other Bank Loans more or equal to EUR 1 mln, with Control Variables

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