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Shadow Bank Funding in European Business Environment

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The aim of this thesis is to investigate the growth of shadow banking and its particular influence on funding non-financial corporations in the euro area during the period of 2000-2018. The term emerged into public knowledge in the wake of financial crisis in 2007-2008 to illustrate credit intermediation activities partially or fully outside the regulated banking sector. It is implied that the robust growth of shadow banks played a central role in the Global Financial Crisis.

The thesis is designed to thoroughly explain the origin and development of the shadow banking sector and its expansion among rivalry European banks. While the thesis is specifically targeting the influence of shadow banks in corporate funding in euro area, the first sub chapters are established to give a profound description of its emergence with reference to the collapse of US housing market. Following the introductory parts, a more detailed view of the shadow banking sector in Europe accompanied with a quantitative analysis of the determinants for the growth of shadow bank credit issuance to euro area corporations.

The thesis demonstrates a neutral view of the prospective benefits and risks associated with European shadow banking institutions. It is evident that they boost the liquidity and foster competition in the European lending sector but likewise are subject to systemic risks.

Keywords	Shadow banking, credit intermediation, non-financial corporation, corporate finance, financial stability, regression

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1 Introduction

The modern global financial system has been facing rapid changes during the past two decades. A central feature regarding the system is the rising proportion of non-bank financing, entailing the disintermediation of traditional bank financing for companies and other legal entities. Shadow banking system entails the essence of this Financial disintermediation in the system. The Financial Stability Board (FSB) defines shadow banking as “credit intermediation involving entities and activities (fully or partially) outside the regular banking system” (FSB, 2018). In other words, shadow banks are entities which practice bank-like activities and not subject to regulations by national authorities in same terms as traditional banks. These include entities like investment banks, insurance companies, money market funds (MMF), hedge funds, private equity funds, mortgage lenders providing a valuable source of credit to the global economy. The Shadow banking system is a complex system offering great alternatives of credit taking for companies of all sizes from SMEs to large corporations but also holds various economic risks associated with it.

The term itself came in to use in the wake of global subprime crisis in 2007 coined by an American economist Paul McCulley. As the crisis was revolving around issuing credit to real estate developers which ultimately created the U.S housing bubble peak in early 2006 until its burst by 2007, real estate owners were left with massive amounts of debt with an extreme uncertainty of ever acquiring the same capital after reselling their assets (McCulley, 2007). Similar disruptions may occur sooner than one could think, and therefore the characteristics of shadow banking is an important topic to investigate.

1.1 Objectives and scope of research

This thesis is centred around the interconnectedness of shadow banking and corporate finance in the euro area. More specifically, the thesis will take into account the eurozone countries (EU19) to measure the significance and economic impacts of each country´s adaptation to the non-bank funding system in the area mainly during the period of 2000-2018 and provide predictions of the general outlook in the future. The research will conclude the evolution of non-bank credit intermediates and the features, motivations and risk implications related to the past and more specifically to the present and future effects of the shadow banking activities in the European business sector. The reasoning

behind limiting the research scope to the euro area and not the entire EU, is due to the lack of data as on the entire EU level the data sets are not available for most of the missing EU countries. The study will be conducted by applying a regression model to analyse the correlation of shadow banks as the source of funding to the non-financial corporations (NFC). A similar regression modelling will be applied to measure the lending from traditional banks. It is found important to separate the originators of corporate loans in order to specifically measure the interconnectedness of available shadow bank funds and euro corporations demand for alternative sources of funding. The research will also discuss the overall debt structure for European businesses. Other supporting evidence of the growing presence of shadow bank lending will be provided with measures regarding the growth of shadow bank assets and the growing number of corporate loans issued. The overall objective is to study the proportion of shadow bank lending and its influence in the business sector. The hypothesis for the study is that there is a clear relationship between economic indicators which affect to lesser bank lending and therefore gives room for shadow banking to grow within eurozone as well as less regulation regarding traditional bank lending will grow the loans issued by shadow banks.

The research will use data sets from various sources providing official statistics from the EU region. The primary source used for the required data is collected from European Central Bank´s Statistical Data Warehouse (ECB SDW). Second most relevant database is found from Eurostat, the statistical office of the European Union and directorate-general of European Commission, providing statistical information of Europe to conclude comparisons between countries and regions across the Europe (Eurostat, 2019). Furthermore, the research will use the data sets from International Monetary Fund, as they have conducted comprehensive report preparation regarding global shadow bank monitoring since 2011 upon the request by G20 authorities. The key findings are also supported with results from several existing studies focusing on shadow banking.

It is curious to investigate how the shadow banking sector is developing in among European businesses due to the constantly evolving business sector and its reliance on latest technological innovations, especially the increasing adaptation to FinTech. The topic is found relevant to take an initiative to describe what risks may arise as well as what kind of benefits might be associated with the growth of shadow banking. The measurement of the shadow banking sector is put forward by FSB in which 29 jurisdictions are taken into account which altogether represented around 80% share of the global GDP in 2017. (FSB, 2018) The jurisdiction with the largest share of reported

shadow banking activities is US ($14.9 trillion, 28.9%) followed by Euro area ($11.8 trillion, 23.0%) and China ($8.2 trillion, 16.0%) out of the total. (FSB, 2018) There are numerous of working papers conducted about the increasing amount of shadow banks in US and China regarding the growth of shadow bank funding, but no explicit study of the modern European circumstances. This research will apply distinct analytical approach for the measurements of the sector and propose further investigations regarding the measurements of shadow banking activities with the primary focus of lending to different sectors. Therefore, this research is intended to give the reader a thorough understanding of the complexity of the system, its purpose, macro level euro measures and its impacts related to the European business environment by applying related economic theory.

The research is conducted to answer for the following questions:

What is shadow banking? What is the share of non-bank lending among European corporations? What benefits and risks are associated with the activities? How is it monitored and by whom? Is there any causal inferences between corporate lending and shadow banking growth and which factors affects the measurements?

1.2 Research structure

As seen in figure 1, the thesis consists of five main chapters. The first chapter introduces the introduction of the topic and a summary of the objectives and scope of the research. Literature review will define and introduce the terminology and concepts used in the analysis to provide the reader sufficient basis of information to comprehend the problem and the results. Followed by research methodology chapter which will inform the reader with the functions used for the applied study. Next, the more focused chapter regarding lending to non-financial corporations is accompanied with empirical analysis presenting the results of the conducted research with the support of other related evidence of former studies and listing possible limitations. Lastly, the thesis is wrapped up in the conclusion chapter with recommendations for further research.

Figure 1 Structure of the thesis

2 Literature Review

This section is to provide the reader a thorough understanding of the concepts, terminology and other relevant theory utilised in the research work. Reading through the section, the reader should understand the concept of shadow banking and its prominence and functions, current state of European business economy, and the basics of measurement tools used to in the analysis. The data collected will range from 2000 to 2018. In order to understand the results completely, the concept of regression analysis is carefully explained. Lastly, the results accompanied with the support of relevant evidence will give the reader an profound analysis of the presence of shadow bank lending to non-financial corporations.

2.1 Non-Financial Corporations

When talking about the companies which main function is other than engaging in financial intermediation, we are talking about non-financial corporations. This group of companies include all private and public entities which primary activity is the production of goods and services. (ECB, 2007) There are numerous of different business entities included in this category such as, private and public corporations, limited partnerships, co-operatives, non-profit organisations, holding companies, quasi-corporations, and other legal entities with similar objectives and attributes.

2.2 Shadow Banking

"If it looks like a duck, quacks like a duck, and acts like a duck, then it is a duck – or so the saying goes. But what about an institution that looks like a bank and acts like a bank? Often, it is not a bank – it is a shadow bank" – Laura Kodres, IMF, June 2013

In our global economy, banks accounts for a significant proportion of the global financial system and the economy as a whole. Banks, or as we would define them as "commercial banks" or traditional banks, serve individuals by allocating funds across savers and borrowers as well as providing specialized financial assistance for individuals to obtain relevant information about saving, borrowing and investment opportunities. Commercial banks are the largest financial intermediary in the global economy regardless of the country or state in question. Typically, these banks are joint stock companies, either publicly listed or privately owned institutions whose main activities revolve around deposit-taking and lending. The primary function of the banking system is the creation of information-insensitive debt while it is regulated by national authorities. (Gorton, 2010. Page 27). As these demand deposits do not carry any fixed maturity they can be exchanged for cash at par on demand. It makes them senior claims as well as being senior claims on a portfolio making them available to be used for transactions. (Gorton, 2010. Page 27).

While individuals deposit their money either on their current or savings account, commercial banks use these funds to finance their other operations. Some of the largest commercial banks are familiar to engage in other activities as well, such as investment banking, private banking, corporate banking and insurance. Overall, their services are tailored to support individuals´ monetary activities and purposes and thus helping to make the economy more efficient. Although, there is a widespread bank-like activities with a rough $52 trillion market size activity revolving in the global lending sector, this is what we call shadow banking.

Whereas traditional banking activities revolve around deposit-taking institutions, shadow banks represents an alternative source of funding. These institutions are considered as non-banks or credit intermediaries, which practices bank-like activities outside of the regulatory banking supervision of national authorities. Generally, shadow banks are intermediaries which unlike traditional banks, do not take deposits but instead rely on short-term funding, where borrowers offer securities as a collateral against a loan. They

serve as a financial intermediary between investors and borrowers by issuing credit and capital for investors, households and corporations from which they profit from the fees and the interest rate arbitrage. (Rubio, 2017) Referring to the definition by Financial Stability Board (FSB), Laura E. Kodres (2013) defines that the core banking function, or credit intermediation, is dealt in a complex manner through four central aspects:

Maturity transformation – Obtaining short-term funds to be transformed into long-term assets available for investments.

Liquidity transformation – Entailing the concept of using cash-like liabilities to purchase securitized assets, such as loans.

Leverage – Borrowing money to buy fixed assets to amplify potential gains or losses on investments.

Credit risk transfer – Taking the borrower´s default risk and transferring it from the originator of the loan to another party, e.g. credit default swaps.

Shadow banks include broker-dealers in these activities, whom then fund their assets, by combining repurchase agreements (repos) with debt securitization, or other information-insensitive debt, to imitate the regular banking activities to be offered for companies (Gorton, 2010). Repos are considered as agreements in which one party sells a security to another party to raise funds and promises to buy the security back at a fixed price on a fixed date. (Kodres, 2013) The shadow banking system is therefore considerably different from regular depository institutions, as it involves the repo market in the activity, by individually matching depositors and lenders and where all depositors gain a collateral for the risk they are willing to take. Institutions falling into this category are the likes of investment banks, money market funds (MMF), hedge funds, private equity funds, special purpose entities (SPEs), mortgage lenders and any other non-bank intermediaries. The characteristics of banks, shadow banks and other market base financing institutions differ vastly from each other, therefore a simplified view of these entities are presented in the table 1.

Table 1 Simplified view of structural characteristics of different credit intermediaries
Source: Adrian & Jones, 2017

Simplified view of Structural Characteristics of Different Credit Intermediaries

Characteristic	Traditional Banking	Riskier elements of shadow banking activities	Resilient Elements of Market Based Financing*
Examples	Commercial Bank	Synthetic CDO, Structured Investment Vehicle, CNAV, MMF, ABCP Conduit	Direct lending by pension or SWF fund, distressed debt or PE partnerships
Key Risk Transformations	Liquidity, Maturity, Leverage	Credit enhancement, liquidity, maturity, leverage	Less emphasis on credit enhancement and less opaque vs. shadow banking
Institutions Involved in Intermediation	Single Entity	Can be many entities interconnected through collateral chains and credit guarantees	Single/few entities
Formal Official deposit insurance	Yes	No, but possibly indirect access	No
Implied Private Sponsor Support	N/A	Yes, can sometimes be contingent liabilities	No, insolvency remote for sponsor
Key Basis of Funding	Mix of debt and deposits, wholesale and retail-financed	Highly runnable	Less runnable

Source: IMF, 2017.

Note: CDO = collateralized debt obligation; CNAV = constant net asset value; MMF = money market fund; ABCP = asset-backed commercial paper; SWF = sovereign wealth fund, PE = private equity

*Resilient Elements of Market Based Financing refers to the non-bank activities which do not carry any additional risk into to the system due to providing capital to the market. Such activities include for example investments in financial instruments, like stocks and bonds.

As shady as the term sounds, shadow banking does not refer to any illegalities. The reason for perceive them as such is made by means to characterise the complexity of the system and while it "stays in the shadows" out of the supervision of regulatory authorities. Generally, shadow banks are often associated with the outcome of the Global Financial Crisis (GFC) raising doubtfulness and caution. When we say that the system is unregulated, we refer to the fact that unlike traditional banks, shadow banks are not subject to regulations stated in the Basel accords on banking regulation (Basel III), which focuses on the supervisory and regulatory tools on macro developments in credit and

risk-taking actions, such as interbank lending, cyclical adjustments of capital requirements as well as supervision on bank interconnectedness (Gebauer & Mazelis, 2018).

2.3 Emerging Shadow Banking Sector in Europe

A sharp decline in nominal value of asset prices, households unable to repay their debts and companies default and face liquidity shortages. These factors contribute to what we call a financial crisis and specifically reflects the events in the US during the late 2000's Subprime Crisis, when the whole American house market collapsed. Contrary to the assumptions of certain European officials stating that it is unlikely that the crisis would affect European economy at all, but in turn transformed in to the Global Financial Crisis (GFC) (Fatás, 2018). The turning point of the events that started in the beginning of 2007 following the collapse of Lehman Brothers in September 2008 lead to a spread of global financial struggle and ultimately a recession in advanced economies. Although, the crisis appeared evident in Europe even before the end of Lehman Brothers as major European banks such as Société Générale, UBS, Northern Rock and BNP Paribas experienced vast financial losses and difficulties during 2007-2008 due to a massive use of dried short term funding markets and conducting unauthorised trades made by rogue traders. (Rehault, 2013) This is only one part of the set of occurrences that demonstrates the interconnectedness of European and US entities with such a small lag in between the events.

The Europe learned from the devastating effects of the crisis by contributing more in the supervision of European banking sector as severe liquidity and insolvency issues occurred. Therefore, Europe conducted restructuring processes for regulations in the banking sector leading to European banks to adopt tighter lending standards hence raising concerns especially amongst households and SMEs in Europe. Whereas households are mostly relying on the credit given in form of a mortgage, SMEs are struggling with the availability of raising corporate loans from banks and due to their perspective that these smaller entities carry more risk than bigger firms with adequate credit rating and thus makes them unwilling to issue loans. Consequently, reduced availability of lending through traditional channels caused an increase in demand for alternative sources of funding. Even larger corporations became more interested of lending outside the traditional banking sector due to more favourable lending costs, thus

complementing the increased demand for shadow bank funding (Rehault, 2013). Although, the growth of non-bank financing is seen to play a big part in the previous crisis. The share of credit issuance expanding and European banks' assets growing at a robust pace when in 1985 the total assets were measured as 116 per cent of euro area GDP and increasing to 219 per cent up to 320 per cent in 2000 and 2008 respectively (Constâncio, 2017). The US faced the financial expansion due to the enormous growth of shadow banks as in 2007 the sector became as big as the banks in asset size. Moreover, the corporate debt levels in the euro area kept increasing vastly as from the pre-crisis level of corporate debt was €5.3 trillion in 1999 and almost doubled by 2008 when it reached €9.6 trillion. On European level the situation was not as alarming but the shadow banking sector was experiencing notable growth in the region.

Schnabl (2017) points out that during the 2000's, European Central Bank's ultra-loose monetary policies advanced the likelihood of overinvestments in Europe, thus causing financial and economic imbalances. Likewise a number of macroprudential tools which national policymakers assimilated proved to be a poor substitute for systematic monetary policy strategies with intentions to stabilizing outcomes of such actions and controlling the level of inflation across Europe (Duca et al, 2017: p. 12). Taylor (2007) provides an example, as during the first half of 2000's the abnormally low interest rate environment caused a hike in real estate prices and construction. This corresponds to the situation in Europe during the second half of 2010's due to ECB's quantitative easing programme which artificially pushes interest rates to the bottom level and conversely contributes in increasing CRE prices. Moreover, such low interest rates attracts the investors to alter their risk-taking tolerance and investment profile and consequently allure lenders to seek more risk with higher returns (Challe, Mojon & Ragat, 2012). Adopting such macroprudential policies can affect negatively in the financial markets thus leading to an excessive amount of systemic risk, even though this may not effect on investment decisions. As IMF (2014) suggests, shadow bank growth is driven by investors due to their "search of yield, regulatory arbitrage, and complementarities with the rest of the financial system". Such preferences boost the growth of shadow banking as they are able to tail the events, whereas much of the shadow banking activities exploit tail risk which is usually mispriced by regulation. (Duca et al, 2017) In the pre-crisis era in mid-2000's loose capital requirements and suitable monetary policies attracted investors to a greater use of risky financial practices to finance riskier shadow banking products in an environment where safe short-term yields were low (Maddaloni & Peydro, 2011). Referred products considers originated investment securities such as Asset-Backed

Commercial Papers (ABCP), Asset-Backed Securities (ABS), and certain funding instruments like repurchase agreements (repo) and security lending. Such instruments gave exposure to institutional investors who were looking for alternative investment opportunities bearing low risk and high yields. Furthermore, such securitised products combined of a large pool of debt assets attracted institutional investors as they would not have been able to access them otherwise, which made the opportunity even more compelling and suitable for their risk-return and diversification preferences (Schwarcz, 2012). Duca (2017) implies that such practices as the investors' hunt-for-yield and risk-taking effects accommodated with high interest sensitivity of long-term assets predicate that accommodative monetary policy can predicate to the accumulation of financial imbalances whilst depending on the regulatory environment.

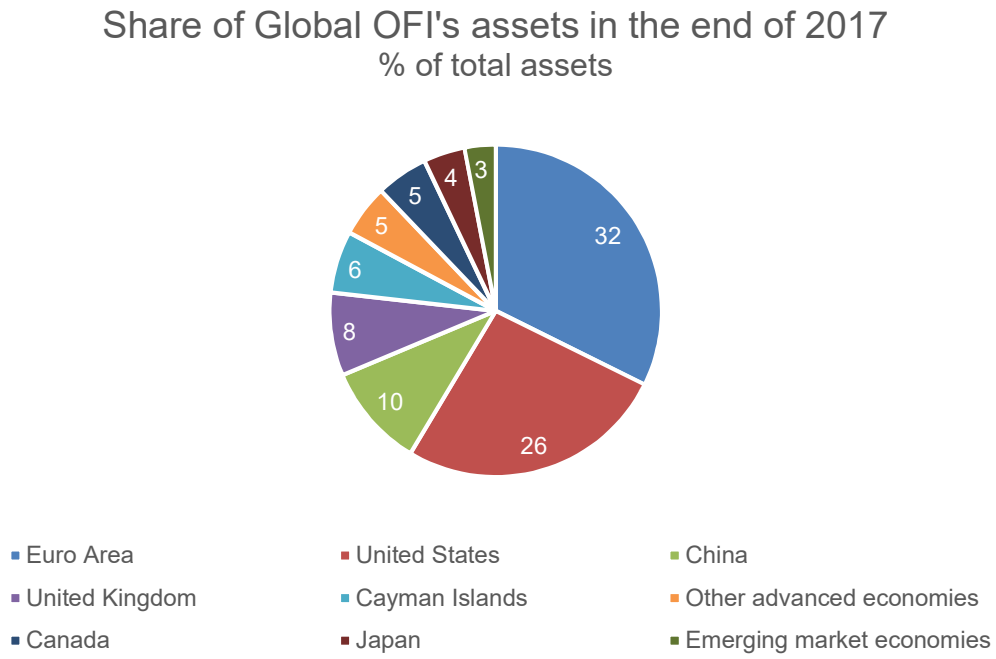

Figure 2 Share of Global OFI´s Assets in Q4 2017
Source: FSB, 2018

As shown in figure 2, shadow banking sector (proxied by OFI assets) has seen rapid growth by the end of 2017. Increasing demand of highly liquid investment opportunities and tempting yields are a notable factor affecting such strong growth. Bank credit might be unavailable for SMEs and other smaller entities which from the view of banks might seem unstable or carrying too big of a risk of default. In comparison, during the period of 2011-2016 the compounded growth rate of shadow banking assets in euro area totalled 9.4% (FSB, 2019: 17). European Systemic Risk Board, ESRB, (2017) reported that the EU shadow banking sector hit a €42.3 trillion mark in total assets at the end of 2017.

Overall, the measure had declined by 0.1% compared to previous year but in turn the proportion of euro area (19 countries forming the eurozone) rose by 1.2% to a total of €33.8 trillion in assets. (ESRB, 2018) Investment funds accounts roughly for one-third of the EU's shadow banking system, whereas other financial institutions (OFIs) represents the remaining proportion. (ESRB, 2018) The figure the EU28 accounts for roughly 32% of the global shadow banking assets (FSB, 2018).

2.4 Monitoring of Shadow Banking

As the previous financial crisis showed a devastating and long-lasting negative impact on global economy, national authorities are in need of new risk management acts to be applied for the banking sector. Macroprudential policies are to be applied to enhance the resilience of the financial system, but this becomes troublesome when shadow banks are tried to be included in the traditional regulations. Less regulations may appear to be positive in the single market as EU, but regarding shadow banking, it carries more risk to the lender. As shadows banks are not subject to strict supervision as traditional banks, they do not have to meet the capital requirements or so called reserves hold for sudden unexpected liquidity purposes. Unlike traditional banks, the lack of regulation also leads to the fact that these entities are not admitted to any deposit guarantees, insurances or central bank funding. Thus, shadow banking system poses regulatory arbitrage concerns, as activities can be implemented to circumvent or undermine banking regulations which may then lead to unintended spillovers of regulation. (Rubio, 2017). When these unregulated non-bank entities perform bank-like activities, larger risks are accumulated, therefore might lead to destabilizing the entire financial system.

Shadow banking sector is seen as relatively non-transparent and without proper flow of information across different jurisdictions Financial Stability Board took an initiative to launch an annual report providing information about the current state of shadow banking activities that reaches the data of the world's largest advanced and emerging economies. This monitoring report has been conducted for eight consecutive years since 2011, and by 2018 have changed the terminology to replace "shadow banking" with a more straightforward approach to be called as "non-bank financial intermediation". FSB (2019: 7) measures non-bank activities through three various aggregates:

1. **Monitoring universe of non-bank financial intermediation (MUNFI),** refers to a broad measure of non-bank financial intermediation, including pension funds and insurance corporations (ICPFs), other financial intermediaries and financial auxiliaries in the measurement.

2. **OFIs,** comprising all financial institutions other than banks, central banks, ICPFs, public financial institutions or auxiliaries. Largest share in the group consists of investment funds, broker-dealers, and captive financial institutions and money lenders (CFIML).

3. **Narrow measure of non-bank financial intermediation,** includes various non-bank financial entity types that are assessed to be engaged in credit intermediation. The classification of these are dealt through five different economic functions as shown in table 3.

Table 2 Economic functions by FSB´s narrow measure
Source: FSB, 2018

Economic Function	Definition	Typical Entity Types
EF1	Management of collective investment vehicles with features that make them susceptible to runs	Money-market Funds (MMF), fixed income funds, mixed funds, credit hedge funds, real estate funds
EF2	Loan provision that is dependent on short-term funding	Finance companies, leasing/factoring companies, consumer credit companies
EF3	Intermediation of market activities that is dependent on short-term funding or on secured funding or on secured funding of client assets	Broker-dealers, securities finance companies
EF4	Facilitation of credit creation	Credit insurance companies, financial guarantors, monolines
EF5	Securitisation-based credit intermediation and funding of financial entities	Securitisation vehicles, structured finance vehicles (SFV), asset-backed securities (ABS)

Through these distinct measurements, FSB provides a clear classification of various components that make up the total shadow banking system. For the analysis conducted in the end of the research paper, OFIs are used as the actual measurement of shadow bank lending, as other components are relatively un-transparent in European level to determine the actual extent of their involvement in issuing loans.

2.5 FinTech

The Great Financial Crisis showed the world how big of an impact excessive over-lending and debt creation has on the global financial system. As regulators have become more concerned on the regulations towards financial industry new loopholes can be exploited by utilising the rapidly evolving FinTech sector, whereas a wide spread of novel technologies can be used to offer financial services with loose restrictions. Even though FinTech companies accounts for relatively small presence in Europe, it is believed to emerge new risks. Constâncio (2017) implies that the use of AI and machine learning may contribute to further concentration in the financial sector, one of them being projects utilising blockchain technology, whereas banks are able to create networks where a various set of transactions can take place between themselves. FinTech is also giving a lot of room for shadow banks to implement the technology. A study conducted by Buchak et al. (2017) focused on analysing the rise of FinTech shadow banks in the US residential mortgage markets. The study showed that online mortgage lending platforms used by shadow banks have been driven by the low level of regulation, transaction costs and personnel costs leading them to be able to provide cheaper mortgages. Same technology can be applied for issuing corporate loans which may turn out as an advantage for shadow banks.

2.6 Types of Financial Intermediaries

In order to estimate the shadow banking sector in the euro area in a more amplified point of view, the study will classify Other Financial Intermediaries (OFIs) as shadow banks, due to these entities are engaged in financial intermediation, like banks, but do not represent an actual bank. FSB (2019) defines OFIs as “financial entities that are not classified as banks, insurance companies, pension funds, public financial institutions, central banks, or financial auxiliaries”. These entities are corporations who intermediates in lending processes by channelling funds between lenders and borrowers through their own accounts or any auxiliary financial activity which are closely related to financial intermediation, although not considered as deposit takers.

As shown in figure 2, the total global volume of OFIs does not reach the same level in assets as banks do but still accounts for a large proportion of total volume and size of

assets on the market, although the situation differs greatly when we take a closer look at it on euro level.

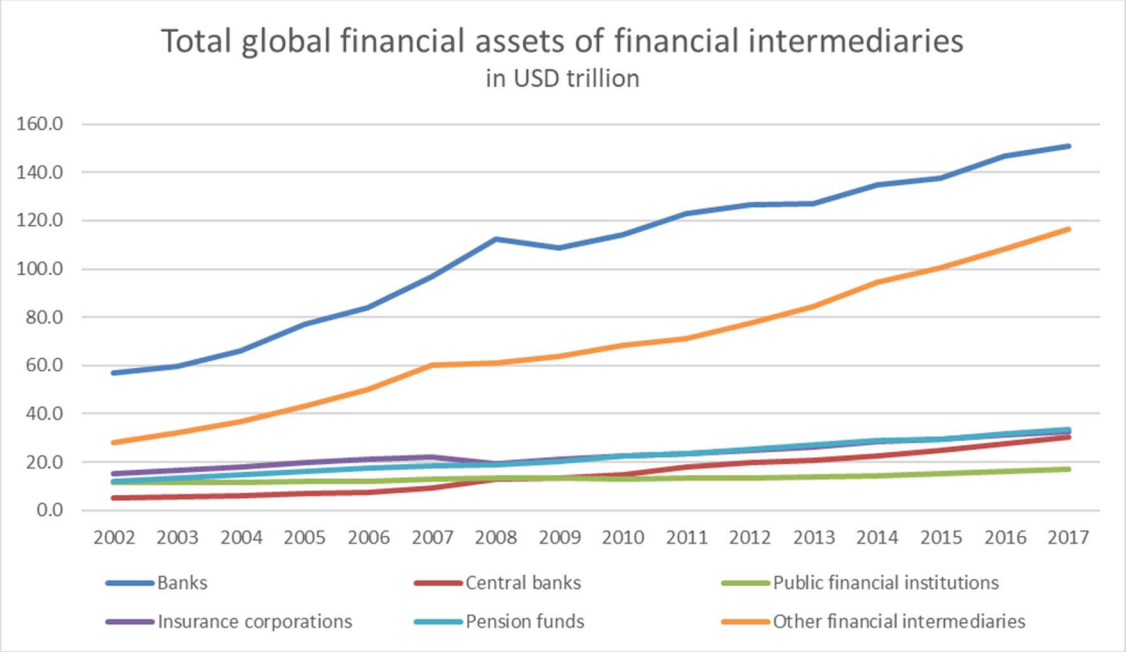

Figure 3 Total global financial assets of financial intermediaries
Source: FSB, 2018

The growth of OFIs has been robust during the past decade and the their share has been progressively increasing in Europe. As of 2017, the composition of total financial assets to GDP in the eurozone is reportedly dominated by OFIs (see figure 3). Such institutions are emerging in numerous countries around the globe by especially providing funds for households and corporations to carry out real estate investments, and therefore are found as key players in the funding scheme. There are a huge variety of entities that fall in to this category, hence it is important to understand the basic functions of these.

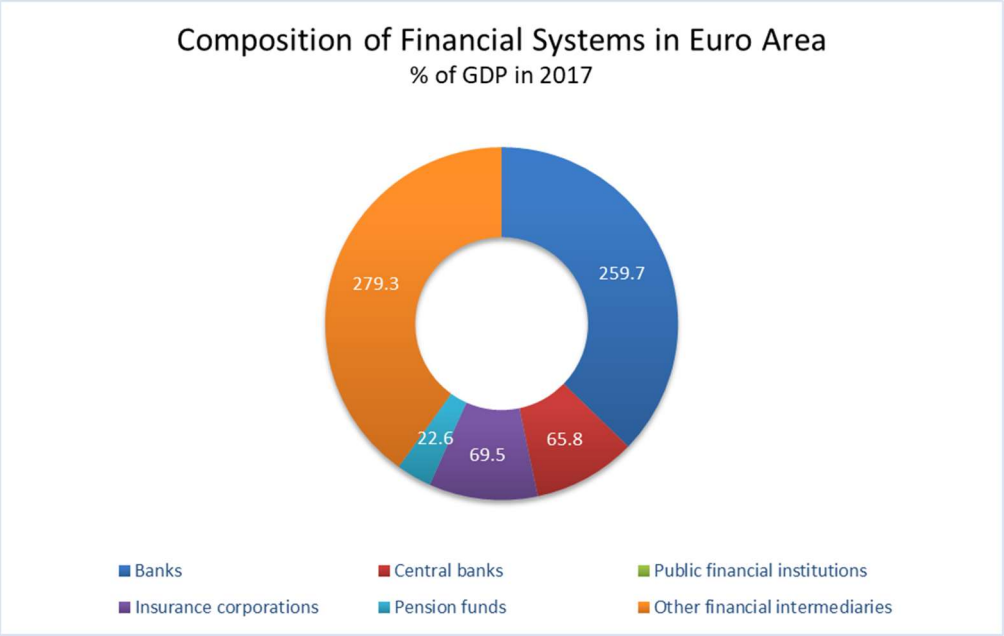

Figure 4 Composition of Financial Systems in Euro Area in 2017
Source: FSB, 2018

Money market funds (MMFs) is a kind of mutual fund which particularly invests in short-term debt securities and generally pays dividends in line with the short-term interest rates. These funds typically invest in highly liquid assets such as cash and cash equivalents but as well for short-term debt instruments. In general, MMFs are different from other intermediaries included in the non-bank funding sector as they usually invest high credit rate bearing debt securities which have a very low risk level. Although, the ample size of MMFs and their sole investment purpose on short-term assets are argued to have negative consequences for regular bank funding, corporate commercial paper funding as well as government treasury offerings. (CFA, 2019).

Hedge Funds are private investment vehicles that uses pooled funds with the goal to generate high returns on its investments but simultaneously holding a high level of risk. The main purpose for hedge funds is striving to beat the market, even though in theory this is seen unlikely or even impossible. Hedge funds are known to invest in high risk bearing instruments such as derivatives, FOREX (foreign exchange), and volatile publicly traded securities. Hedge funds are subject to common reporting and record-keeping regulations as any other investment entity focusing on publicly traded securities, although they may use a high level of leverage to secure favourable trading positions in variety of securities (CFA, 2019).

Real estate investment trusts (REITs) are companies that usually owns physical properties or any other real estate related assets and allows individuals to invest in these. The key purpose of a REIT is to operate and develop its owned properties and provide a share of its income, which mostly derives from tenants' rental payments, by holding auspicious properties as a part of its portfolio. Many REITs are registered companies which are publicly traded on stock exchange, although there are some that are not traded and may not be registered with the regional SEC, particularly non-exchange traded REITs. Non-traded REITs and some mortgage REITs are seen to carry an excess level of risk for an investor due to their lack of liquidity and share value transparency, unusual dividend payments (from offering proceeds and borrowings), and conflicts of interest, as these REITs may have an external manager controlling the company (SEC, 2019).

Broker-dealers represents a person or a company that buys or sells securities for its own account or on behalf of a customer. The term implicates that the person or company acts both as a broker when it offers services for its customers and as a dealer when the trading is done for its own account. (Investopedia, 2019) Broker-dealers represents an intermediary which are known to be directly involved in shadow banking activities. As an example, they achieve to gain an collateral efficiency by engaging in re-hypothecation processes, or re-pledging of collateral, and use netting positioning in order to minimize balance sheet usages. Under distressed markets or in any collateral value losses, risks occur due to rollovers as these are different from regular deposit runs. (Systemic Risk and Systematic Value, 2015) This scenario occurs to the broker-dealer itself due to any risky actions undertaken but then also traces down to the customer.

Structured investment vehicles (SIVs) are a complex type of a special purpose fund which consists of pools of investment assets with a purpose of profiting from short-term debt and long-term financial product credit spreads. Generally, these vehicles issue commercial papers to borrow funds for short-term that they may invest in long-term assets baring adequate credit rating. Such long term assets include securitised financial products such as asset-backed securities (ABS), mortgage-backed securities (MBS) and collateralized debt obligations (CDO). (Investopedia, 2019).

There are certain securitised assets which are notably in the centre of the securitisation schemes. The following definitions are provided to give a better understanding of these securities:

Asset-backed securities (ABS) are securities formed of a pool of debt instruments such as bank loans, student loans, car loans, credit card debts, leases or any other receivables. These assets are issued as a traded instrument through a securitisation process. Securitising such instruments refers to a transfer of ownership from the original owner to a special legal entity. Afterwards, the debt instruments are pooled into a security and this security is able to be traded on the market. The cash flows generated from an ABS are then used to pay the required interest and ultimately the principal to the holder of the security. Usually there is a distinction between an asset-backed security and a **mortgage-backed security (MBS),** whereas the latter specifically refers to a security backed by mortgage loans but the actual underlying asset is hard to determine whether an ABS might also include residential or commercial mortgages. Therefore, for the purpose of this study both are taken into account in analysis. (CFA, 2019)

2.7 European Economic Outlook

The growth of European economy has struggled vastly during the past decade. In the aftermath of recovering from the Global Financial Crisis (GFC) after 2009 Europe experienced yet other economic difficulties. The following downward slope indicates the Greek government debt crisis. In 2010, the European Central Bank (ECB) and the International Monetary Fund (IMF) formed the European Financial Stability Facility to support Greek economy with a €110 billion euro bailout loan to help the country to get back on its feet for over 3-year period until the repayment. (CFR, 2015) Nevertheless, Greece was unable for the repayment the following two years and was provided yet another rescue package from EU-IMF ministers worth €130 billion euros and forced to reduce its debt-to-GDP ratio from 160 per cent to 120.5 per cent by 2020 implying a complete debt restructuring. (CFR, 2015) After all, Greece was not the single entity to affect the downturn as Portugal and Ireland's complexities piled up to an imminent need for funding.

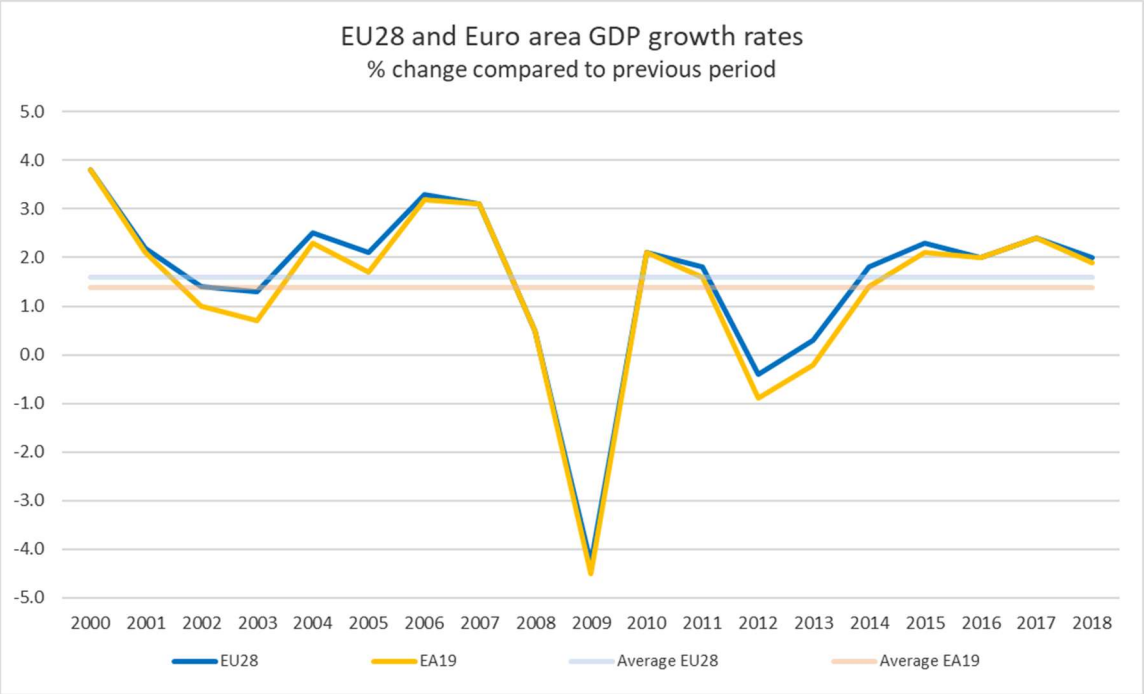

Figure 5 Annual Real GDP Growth in EU28 and Euro Area
Source Eurostat, 2019

Europe has faced a decline in the year 2018 Gross Domestic Product (GDP) growth rate compared to the previous year but both EU28 and euro area seems to stay in line with their 15-year average of 2.2% and 2.0% respectively. The difference is significantly under the record peak of 2.7% for EU28 and 2.4% for euro area in 2017. The slowdown is hard to determine with merely a single reason, but instead several factors have contributed to the result.

Germany, the economy´s bulldozer, has a considerable weight in the measures as the auto industry disruption to comply with European targets for lower emissions. Other contributors include France´s consumer tax rate increase, appreciation of euro, oil price hikes and the uncertainty regarding Brexit. (CBRE, 2019)

On an international perspective, there are numerous sequences of events which have a direct effect on European economic growth and high price hikes in commodities and as well as an assumption of growing risk factors. The US-China trade disputes are shaking the international capital markets as well as the recent slowdowns in Chinese economy which may spread to other emerging markets and hurt the economic growth in developed countries. Furthermore, the growing interest rates and possible inversion of the US yield curve worries investors, not to mention the global emerging risk of market default mainly driven by Chinese housing sector as well as late stock market corrections. (CBRE, 2019)

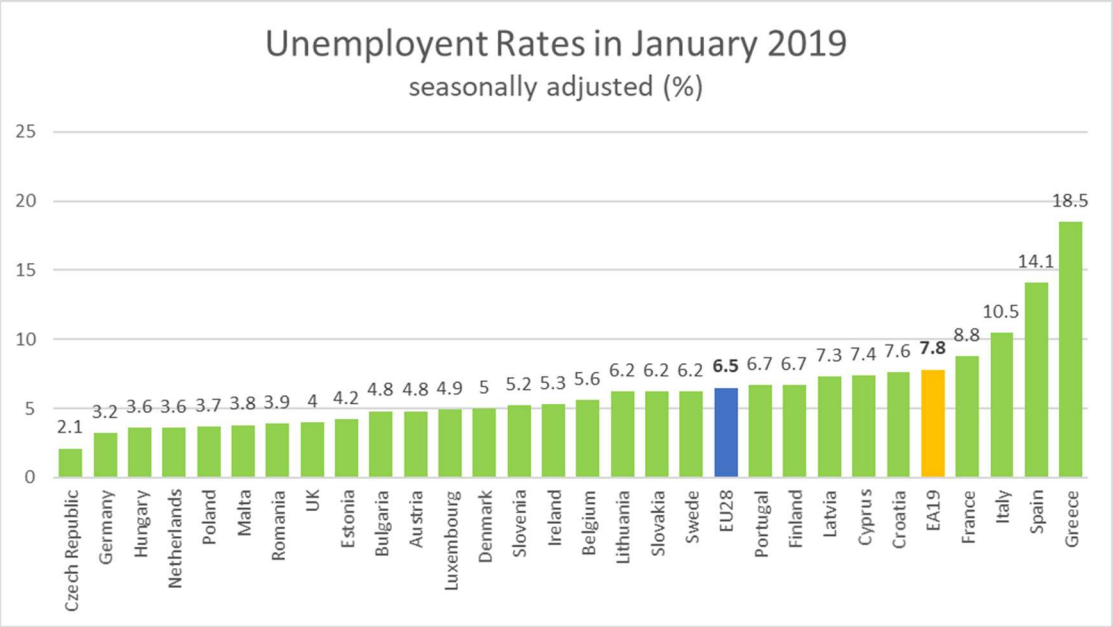

Figure 6 European unemployment rates in January 2019
Source: Eurostat, 2019

The economic growth in Europe may have recently descended, yet unemployment has improved in most of the countries. As figure 4 indicates, the EU28 unemployment rate had fell 70 basis points (0.7 per cent) since from January 2018 to January 2019, indicating decent improvements for the Europe as a whole. The worrisome states such as Italy, Spain, and Greece with the top three highest unemployment rates are contributing heavily on the average with 10.5, 14.1, and 18.5 per cent respectively, whereas the rest of the countries rates stay well below 10 per cent. Despite the economic and political crises across these three countries, the unemployment rate for EU28 countries has hit the record lows, as the rate previously has not fell below 7.0% during the 21st century.

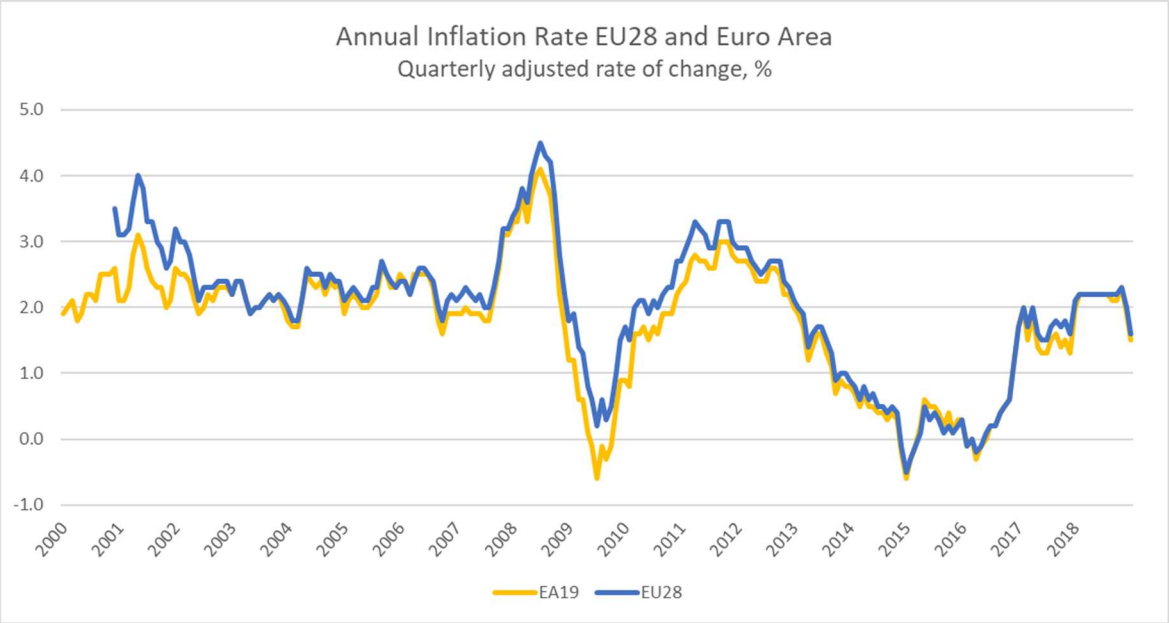

Figure 7 Annual inflation rate in EU28 and Euro Area (%) Q12000-Q42018
Source Eurostat, 2019

As shown in the figure 5, the inflation rate fluctuations during the past decade reflects to the negative effects of the ongoing Eurozone crisis which has caused harm to across all member states. Since the crisis initially occurred back in 2009, multiple member states have been negatively affected as the crisis disrupted countries to refinance their debt, which in turn made it impossible without support from a third party bailout programmes. This has resulted to the slowdown of economic growth throughout Europe as gross debt levels escalated across the EU. As long as the eurozone crisis is ongoing, the rising level of debt is expected to continue. In 2018, the inflation rate in EU and euro area stood at 1.9% and 1.7% respectively. (Statista, 2019). The following years the aggregate inflation rate in both EU and euro area is expected to slightly increase, ranging from 10 to 20 basis points up to 2.1%. The expectations may vary as the trade-off between tight labour markets should contribute on pushing wages and prices higher, whereas flattening commodity prices should pull inflation down. (CBRE, 2019)

By the end of 2018, ECB's quantitative easing programme was confirmed to end by the beginning of 2019. This meaning that ECB stopped its scheme of buying government securities and other securities from the market to keep interest rates low, and therefore directly leading to cheaper cost of lending and encouraging investments (World Finance, 2018). As the interest rates have stood at historic low levels for the past four years, the interest rates are due to gradually increase, but most probably in a long-term rather than short-term.

2.8 Multiple Regression Analysis

Regression analysis is an analytical conceptual method prepared in order to examine the relationship between two or more variables. Due to its practicality and sophisticated nature, the regression model is found as a highly relevant tool for the research to analyse data, where numerous factors may affect the trend of shadow bank growth. The analysis is implemented in order to approximate and identify correlations between the dependent and independent variable to support further studies in identifying relevant controls over the dependent variable. The relationship will be expressed as an equation, which connects the dependent variable and one or more explanatory or predictor variables. (Chatterjee & Hadi, 2012)

The dependent variable is denoted as Y and the set of explanatory or predictor variables by $X_1, X_2, \cdots, X_p$, where X represents a single independent variable and p the number of these variables. The relationship between the variables Y and $X_1, X_2, \cdots, X_p$ can be measured with the use of regression model followingly:

$$Y = f(X_1, X_2, \cdots, X_p) + \varepsilon_1$$

Where ε denotes the random error expressing the discrepancy within the estimations. It takes into account the disruption of the model to fit in to the data. In turn, the function $f(X_1, X_2, \cdots, X_p)$ explains the relationship between variables Y and $X_1, X_2, \cdots, X_p$. The model will be implemented into a linear regression model as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 \cdots + \beta_p X_p + \varepsilon,$$

Where $\beta_0, \beta_1, \cdots, \beta_p$, represents the regression parameters or coefficients, which are unknown constant variables to be determined or estimated from the data used for the model. (Chatterjee & Hadi, 2012).

3 Research Methodology

This chapter introduces the primary research methodological tools and techniques that were used in conducting the study. The primary focus of the research is based on quantitative data approach by utilising econometric modelling techniques by the use of regression analysis including numerous of independent variables to better determine the prediction and presence of shadow bank lending in the eurozone´s corporate environment. In addition, the regressions are run by SPSS Statistics (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp) The following subsections will provide a proper view of the statistical techniques, data collection and other relevant methodologies used in the research.

3.1 Quantitative Data Collection

The quantitative data was collected on the basis of literature review figures with careful queries conducted through one main sources to find the most reliable data to be used as the input variables and the dependent variable for the analysis. Mainly the data was collected from ECB SDW (European Central Bank's Statistical Data Warehouse). Moreover, the STOXX Europe 50 Volatility index data was gathered from STOXX historical data and bank capital ratio figures from World Bank database. In addition, the literature review partly presents data gathered from International Monetary Fund (IMF) and Financial Stability Board (FSB) databases due to the comprehensive work regarding global non-bank monitoring.

ECB Statistical Data Warehouse was the primary source for gathering the most relevant key elements for the analysis. is the central bank of the euro currency which works as the executive administrative office for monetary policy in the euro area. A few of the financial figures required to include the input, or explanatory, variables in to the modelling were found from ECB's database.

3.2 Research Variables

The dependent variable used in the analysis was collected from Eurostat database where the amount of loans issued to non-financial corporations by other financial intermediaries. The independent variables, or explanatory variables, were collected from

ECB, Eurostat databases as well as the market volatility index proxy STOXX Europe 600 from Yahoo Finance. These represent the ones used in explaining and determining the dependent variables.

3.2.1 Dependent Variable

The dependent variable representing shadow banks in the regression model is “Loans issued by OFIs (except non-MMFs investment funds) to resident non-financial corporations”. This is by far the most relevant and straightforward indicator of shadow bank lending as OFIs (Other Financial Intermediaries) consists of most of the entities considered in the group of riskier entities involved in credit intermediation which were previously listed in the literature review and are not considered as regulatory deposit-taking institutions. The bank data is presented as “Loans issued by MFIs to resident non-financial corporations”. Both data sets are presented as ratios, whereas the figures represent the annual rate of growth of loans issued by the entities.

3.2.2 Independent Variables

Independent, or explanatory variables, are the variables which are collected to the regression model to explain the fluctuations of the dependent variable. Table 2 presents the main variables included in running the regression model. The data types are presented in various types, ranging from count data to ratios. Table 2 shows each of the variables, description of the variable, type of data, and the source of the data. Regarding the variables, it can be seen they are all related to either household finances and attributes, real estate prices, construction volumes and overall economic indicators which are all found relevant to the study. Most of these figures are presented earlier in the literature review but some may be presented in other formats.

Table 3 Independent Variable List

Variable	Description	Data Type	Data Source
Annual Growth of Real Gross Domestic Product (GDP)	The annual change of GDP in the Euro Area.	Ratio	ECB
Inflation	Indicates the annual change in level of inflation.	Ratio	ECB
Term Structure of Interest Rates	10-year government bond benchmark yield representing the relationship between market remuneration rates and the remaining time of maturity of debt securities.	Count data	ECB
Bank Capital Ratio	Ratio of bank capital and reserves to total risk weighted assets. Includes tier 1, tier 2, and tier 3 capital.	Ratio	World Bank
Bank Lending Margin	Ratio of banks' interest rates on new loans on new deposits indicating the lending threshold.	Ratio	ECB
Insurance and Pension Funds (ICPF) Assets to GDP	Ratio of total financial assets of insurance and pension funds to euro area GDP.	Ratio	ECB
STOXX Europe 50 Volatility Index (VSTOXX)	Volatility index including 50 real time options prices of 50 largest and most liquid stocks which are traded in the euro area.	Count data	STOXX
Composite Indicator of Systemic Stress (CISS)	Aggregate index formed of five sub-indices (money market, bond market, equity market, financial intermediaries, forex market) created from several individual measures of financial stress.	Unit interval (range 0-1)	ECB
Real Effective Exchange Rate (REER)	Represents a measure of euro area´s international price and cost competitiveness in comparison to its main trading partners.	Count data	ECB

4 Funding of European Non-Financial Corporations

This section provides an analysis of the growth of the shadow bank funding to NFCs in the euro area during the period of 2000-2018. As mentioned earlier in the literature review, shadow banks provide a resourceful alternative to traditional bank lending and promotes the financial market liquidity. As FSB (2019) puts it that non-bank financing is valuable in terms of cultivate competition in supply of financing and also contributes on strengthening of economic activities but also may carry elements which may become a source of systemic risks and other bank-like financial stability risks. The chapter will also present the composition of loans issued in euro area to NFCs by the originator of the loan.

During the past two decades the share of shadow bank lending has grown quite significantly. Figure 8 represents the composition of total loans issued by each sector out of the total amount of loans. The role of shadow bank funding saw a robust annual growth rates during the crisis era from 2007 to 2009 when the sector experienced a growth of 54.2% in just two years and the trend kept a steep growth all the way until 2015. By 2018 the total amount of loans issued by shadow banks totalled €1,492 billion. This meaning that the overall amount of loan issuance has more than doubled during the past decade. Traditional banks still accounts for the largest funding source but the share has been decreasing continuously since the great financial crisis. In 2007 traditional banks dominated the credit market with a 61.8% share out of total loans issued to NFCs, whereas in 2018 it has dropped to roughly 45.3%.

This reflects to the increasing demand of alternative financing opportunities emerging during the era and a relatively significant level of substitution can therefore be found between the two funding sources.

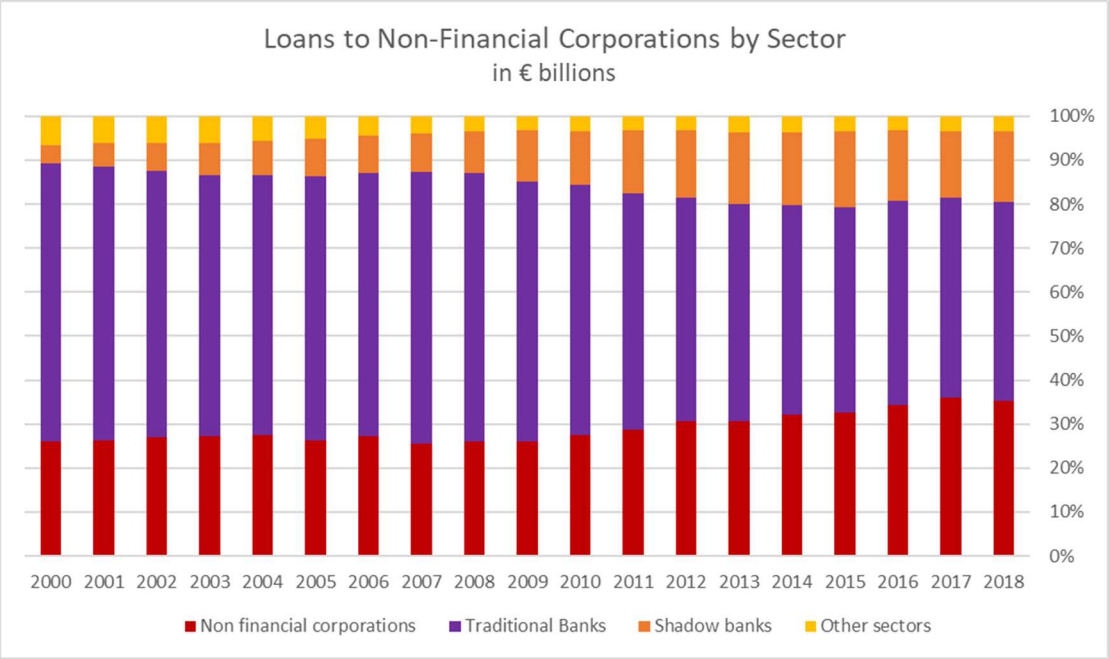

Figure 8 Loans to Non-Financial Corporations by Sector
Source: ECB

It is interesting to find that during the period 2000-2018, the loans granted by non-financial corporations to other non-financial corporations has increased remarkably. Since 2000 the sector has experienced a steep growth and by 2017 already accounting for over one third of the total amount of loans issued with a 35.2% share. This sector can be also defined as intra-sectoral debt financing, of which the major part consists of loans and extended trade credit between companies usually based in the same country (Hertkorn, 2015). The intra-NFC sector is reportedly expressed that majority of corporations in eurozone have distinct amounts of loans extended reported in their balance sheet, whereas majority of these are exchanged between corporations belonging to the same enterprise group (Hertkorn, 2015). The steady growth of intra-sectoral debt financing also reflects to the similar situation as when alternative sources of funding are in high demand as banks in the eurozone are experiencing continuous tightening of their credit standards.

While shadow bank and NFC lending has robustly grown in size, loans granted from other sectors has gradually declined. This group consists of Insurance corporations and pension funds (ICPF), general government, households and non-MMF investment issuing loans to resident NFCs. Out of the four, general government represents the biggest lender in the sector although with considerably lower values compared to the other sectors.

4.1 Results of the study

Considering the significance of growth in alternative funding associated with shadow banking system the following section will present an analysis by running a multiple regression to compare traditional bank and shadow bank as two distinct dependent variables and looking for to explain tendencies and influences of the fluctuations by various determinants.

A reference model for the selected variables is adopted from previous studies by Errico et al (2014) where the main concentration was made for US shadow banks as a flow of funds analysis which was later adopted by Malatesta et al (2016) considering credit granted to NFCs in euro area, and Kim (2016) estimating the determinants of shadow banking on a global scale. The purpose of running the regression based on the former studies is to conduct a revised version of regression analysis by accommodating determinants from various macro level factors which have previously shown to be central in comparison to shadow and traditional bank funding. The multiple regression model used in the analysis is previously introduced in literature review.

The study includes two separate regression models where the dependent variable for banks is “loans granted by MFIs” and “loans granted by OFIs” for shadow banks (shadow banks are proxied by OFIs). Both dependent variables are measured by their quarterly growth rate as well as the underlying data for independent variables are measured in quarters covering the period 2000Q1-2018Q4. The set of independent variables taken into the model are chosen to represent three different groups of determinants: financial markets and liquidity conditions, macro controls expressing the regional demand and supply status as well as regulatory drivers.

The financial markets and liquidity conditions are expressed with VSTOXX European market volatility index, Composite Indicator of Systemic Stress (CISS) index, and the currency competitiveness indicator real effective exchange rate (REER) of the euro.

The determinants for demand and supply in the euro area are represented with a number of macro level indicators, including real GDP growth (%), HICP deflated inflation (%). Furthermore, the share of insurance and pension fund assets to GDP (%) is used to express the demand of institutional investors.

For the purpose of measuring the tendency on regulatory arbitrages, the 10-year government bond benchmark yield or term spread (%) as previously used by Kim (2016) representing a proxy to reserve requirements and indicating search for yield. In addition, bank capital ratio (%) and bank lending margin (%) are used as additional controls.

The results are presented in table 5 and a few disparities can be found between the two entities. Based on the results, shadow banks have the tendency to be affected by macro level indicators, especially the real GDP growth which is considered statistically significant at less than 0.01 (<1%) level corresponding to the level of probability that the observation is highly unlikely to occur by chance. Inflation on the other hand, is also considered significant but on 0.1 (10%) level of significance (see Appendix 1 & 2). As GDP growth rises by 1 per cent, the total amount of loans issued by shadow banks tend to decrease by 0.086 trillion euros, or simply 86 billion as the loan amounts were reported in trillions. In turn, as inflation level increases, so does the loans originating from shadow banks. It is interesting to find out the relevance that bank lending margins have on the loan amounts between entities as the lending margin has a negative coefficient for traditional banks and positive for shadow banks. This expressing the converse effect as when the lending margins increase, the loans originating from traditional banks decrease and loans from shadows banks tend to increase. This provides more evidence to the fact that when the loans bear a higher level of interest for the borrower, the demand for loans declines and encourages to reach out to shadow lenders.

Moreover, the results show that both shadow and traditional banks have a tendency to move along with financial market conditions as the increase in market volatility shows that both entities are originating more loans. Furthermore, the results suggest that while the increase in demand of institutional investors, the loan origination accelerates, although the amount is close to double for traditional banks than for shadow banks, therefore suggesting for more reliance on traditional banks even though the relative size of growth may turn out bigger for shadow banks as the share is considerably lower than that of traditional banks. In addition, traditional banks are likely to face an increase in loan origination due to a stronger euro (REER rate increase).

Lastly, traditional banks tend to be significantly influenced by the term structure. According to Duca (2014: 16), the term structure is considered to be an useful indicator for search for yield when short-term interest rates are low. Duca (2014: 17) also implies that as the widening spreads cause less of threat to traditional banks due to their access

to insured deposits and central bank funds during systemic stress but shadow banks are proven to have negative relationship on bond spreads. The results show similar tendency for a negative movement between shadow banks and term structure.

Table 4 Coefficients of the independent variables

	Shadow Banks	Traditional Banks
(Constant)	-1.922*** *0.425*	-4.113*** *0.823*
Real GDP Growth	-0.086*** *0.024*	-0.068 *0.047*
Inflation	0.03* *0.018*	0.041 *0.035*
Term Structure	-0.008 *0.023*	0.240*** *0.044*
ICPF assets to GDP	0.043*** *0.003*	0.083*** *0.005*
REER	-0.001 *0.002*	0.024*** *0.004*
Bank Capital Ratio	-0.082*** *0.022*	-0.156*** *0.042*
Bank Lending Margin	0.146** *0.072*	-0.309** *0.140*
VSTOXX	0.005*** *0.002*	0.012*** *0.004*
CISS	-0.113 *0.111*	0.963*** *0.214*
Adjusted R Squared	0.964	0.931

The table represents results from two individually run multiple linear regressions of the main determinants of loans issued to non-financial corporations. The dependent variable for the left column (shadow banks) is loans issued by shadow banks and loans issued by traditional banks for the one on the right. Both the coefficients and standard errors (in italics) are show for each variable. Characters ***. **, * denotes the level of significance at 1%, 5% and 10% respectively.

4.2 Limitations of the Study

The results from the analysis suggests that shadow bank lending is mainly influenced by macroeconomic conditions, demand of institutional investors and the changes in bank lending margins. Traditional banks are affected with several of the same factors but tend to correlate with widening term spreads and strengthening of euro.

Even as the author found the statistical aspect of the study intriguing it is evident that the analysis carries various limitations and is at least partly biased. The regression has multiple variables included in the model which on one hand adds more explanatory factors to be fitted into the model but also may cause an inflated r squared result. This is partly what happened in the study in question, whereas the r squared values are exceptionally high. Although, the more in-depth results are received from analysing the significance of each variable in confidence intervals of 1%, 5% and 10%. There were several explanatory variables which were showing strong significance levels on both of the dependent variables, for example market volatility index (VSTOXX). This does not imply that the variable did not provide any room for discussion as it is not that uncommon to be influenced by the financial market conditions. Interestingly the coefficient on CISS index on traditional bank loans was relatively peculiar, as for shadow banks it had a negative relationship implying that the loans originating from shadow banks have the tendency to decrease when the index increases. As the CISS index ranges from 0 to 1 and is to measure the systemic stress level across the financial system, and therefore the outcome is unusual as the index were at its peak during the Q3-Q42008 due to severe consequences of the global financial crisis, which actually was the phase when shadow lending was booming. On the other hand, traditional banks were shown to be influenced positively by the inflating index, which would at least partly make sense considering the crisis era. Moreover, results on considering regulatory arbitrage is subject to measurement errors. As Kim (2016: 17) points out, creating an actual variable indicating the advantages for shadow banks over traditional banks is evidently tedious task and therefore should be estimated with caution.

Furthermore, conducting the study on European level was proven to be relatively difficult task. There is a considerable gap between the information gathered for the purposes of shadow bank monitoring in the European context. Finding appropriate data for this research was difficult to find as usually this meant that certain data sets did not cover more than few years, were not available other than on annual frequencies or simply data

was nowhere to be found. One of the biggest gap in collecting the data was the lack of definition of certain underlying data sets. The primary source used for collecting the quantitative data was from ECB Statistical Data Warehouse, which had numerous of categories regarding other financial intermediaries but aggregated amounts for euro area are unlikely to be found. ECB (2018: 13) has pointed out that efforts are under way to close the data gaps, whereas the situation is well comprehend by relevant parties. As an example, ECB (2018: 13) states that even they have launched a new aggregated balance sheet reports of financial corporations engaged in lending, these only account for roughly 1% of the total financial assets of OFIs in the euro area. Moreover, ECB also provides information of the partly measured "OFI residual" statistics in its annual monitoring reports which is considered to be relatively obscure group of measurement but as the reports suggest the residual amount of OFIs greatly exceeds the currently reported shadow banking activity volumes (ECB, 2018: 13).

All the prior notices considered, there is an evident gap on the transparency of data on euro level when compared to other jurisdictions, such as US or China in whose statistical databases have provided resourceful databases for research purposes. The problem is acknowledged on euro level and as further actions are on the way it can be anticipated that the level of studying the impacts of shadow banking in eurozone can be implemented in a more efficient manner during the years to come. As it comes to the empirical analysis conducted, further studies are encouraged to focus on applying advanced econometrical approaches to investigate the causalities of shadow lending, whereas regression analysis solely provided a gateway to finding correlations between certain economic factors that may affect the growth of the sector.

5 Conclusion

This research was conducted on the basis to give the reader an overview of shadow banking, its activities and presence in the European context by utilising data available from public sources. The literature review provides general concepts of shadow banking sector and its relevance as an alternative source of funding for the European corporate sector. Lastly conducted empirical study was introduced to provide approximations and possible causal inferences of the growth of shadow bank funding in euro area.

The author finds it relevant to recognise the concept of shadow banking and the reason of these entities only recently labelled as such. These intermediaries supply the European corporations, households and financial institutions with a diverse set of novel financial products and recent innovations to foster competition and funding availability in the economy. Activities carried out by these entities may pose a considerable level of risk to its customers due to the fact that they are mainly unregulated and are riskier alternativities for funding purposes than that of traditional banks.

The thesis was built around to examine the emergence and expansion of shadow banking and to explore the differences in contrast to traditional banking sector. Mainly the two undertake similar actions in terms of investments and funding but shadow banks do this in complex manner with loose supervision. Throughout the thesis the main feature was to provide evidence of the continuously growing presence of shadow banking in European market and its importance as an alternative source of funding. A common character for the shadow banks can be determined to be the supply of short-term funding and repo and securities lending to the European businesses, regardless of the size of the enterprise.

The shadow bank sector bears a potential risks for systemic risks and may prove unstable in the financial market turmoil as these intermediaries reportedly have contributed vastly for the previous crisis due to its susceptibility to runs and vast lending to riskier borrowers. Shadow banking has a great potential to keep expanding in Europe due to the continuously evolving financial technology innovations in both products and services, hence providing cost benefits and enhance performance. In order to control the new wave of funding, European authorities should consider applying a decent level of regulation for these entities and focus on making them more resilient form of funding and therefore avoiding future conflicts in the economy.

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Shadow Bank Regression Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.984[a]	.968	.964	.09026725	.968	225.410	9	66	.000

a. Predictors: (Constant), Term Structure, Real GDP Growth, Inflation, REER, Bank Lending Margin, CISS, VSTOXX, Bank Capital Ratio, Share of ICPF

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.530	9	1.837	225.410	.000[b]
	Residual	.538	66	.008		
	Total	17.068	75			

a. Dependent Variable: Shadow Banks

b. Predictors: (Constant), Term Structure, Real GDP Growth, Inflation, REER, Bank Lending Margin, CISS, VSTOXX, Bank Capital Ratio, Share of ICPF

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			90.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-1.922	.425		-4.523	.000	-2.632	-1.213					
	Real GDP Growth	-.086	.024	-.106	-3.545	.001	-.127	-.046	-.095	-.400	-.077	.531	1.882
	Inflation	.030	.018	.039	1.656	.102	.000	.060	-.196	.200	.036	.858	1.165
	REER	-.001	.002	-.008	-.283	.778	-.004	.003	-.265	-.035	-.006	.570	1.754
	VSTOXX	.005	.002	.097	2.708	.009	.002	.008	-.251	.316	.059	.375	2.664
	CISS	-.113	.111	-.039	-1.026	.309	-.298	.071	-.017	-.125	-.022	.331	3.022
	Share of ICPF	.043	.003	1.043	15.627	.000	.038	.047	.963	.887	.341	.107	9.334
	Bank Capital Ratio	-.082	.022	-.143	-3.817	.000	-.118	-.046	.475	-.425	-.083	.341	2.932
	Bank Lending Margin	.146	.072	.062	2.017	.048	.025	.266	.501	.241	.044	.509	1.965
	Term Structure	-.008	.023	-.023	-.350	.727	-.046	.030	-.854	-.043	-.008	.106	9.404

a. Dependent Variable: Shadow Banks

Traditional Bank Regression Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.969[a]	.939	.931	.17479913	.939	112.626	9	66	.000

a. Predictors: (Constant), Term Structure, Real GDP Growth, Inflation, REER, Bank Lending Margin, CISS, VSTOXX, Bank Capital Ratio, Share of ICPF

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.971	9	3.441	112.626	.000[b]
	Residual	2.017	66	.031		
	Total	32.988	75			

a. Dependent Variable: Traditional Banks

b. Predictors: (Constant), Term Structure, Real GDP Growth, Inflation, REER, Bank Lending Margin, CISS, VSTOXX, Bank Capital Ratio, Share of ICPF

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			90.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-4.113	.823		-4.996	.000	-5.486	-2.739					
	Real GDP Growth	-.068	.047	-.061	-1.452	.151	-.147	.010	-.347	-.176	-.044	.531	1.882
	Inflation	.041	.035	.039	1.180	.242	-.017	.099	-.102	.144	.036	.858	1.165
	REER	.024	.004	.249	6.169	.000	.017	.030	.216	.605	.188	.570	1.754
	VSTOXX	.012	.004	.165	3.327	.001	.006	.018	.012	.379	.101	.375	2.664
	CISS	.963	.214	.238	4.498	.000	.606	1.320	.500	.484	.137	.331	3.022
	Share of ICPF	.083	.005	1.462	15.723	.000	.074	.092	.662	.888	.479	.107	9.334
	Bank Capital Ratio	-.156	.042	-.195	-3.737	.000	-.226	-.087	-.038	-.418	-.114	.341	2.932
	Bank Lending Margin	-.309	.140	-.094	-2.209	.031	-.543	-.076	.093	-.262	-.067	.509	1.965
	Term Structure	.240	.044	.503	5.392	.000	.165	.314	-.435	.553	.164	.106	9.404

a. Dependent Variable: Traditional Banks