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INTERNATIONAL FINANCE DEPARTMENT

THE IMPACT OF POLICY IMPLEMENTATIONS ON BANKING FUNCTIONS: INTEREST RATES AND PROFITABILITY ANALYSIS

MASTER'S THESIS

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ADVISOR

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ÖZET

POLITIKA UYGULAMALARININ BANKACILIK FONKSIYONLARINA ETKISI: FAIZ ORANLARI VE KARLILIK ANALIZI

Parlak, İsmet

Yüksek Lisans, Uluslararası Finans

Tez Danışmanı: Levent Yılmaz

Temmuz 2023

Bu tezin amacı Merkez Bankaları politika uygulamalarının bankacılık karlarına olan etkisini faiz oranları ve karlılık açışından araştırmaktır. Ülkelerin merkez bankaları tarafından alınan politika kararları herkesin hayatını doğrudan veya dolaylı olarak etkilemektedir. Yıllar boyunca krizler, savaşlar, ekonomik buhranlar ya da tam tersi olarak yüksek refah, bol para veya normal bir ekonomi döngüsünde ülkelerin bu zorlukları aşmak ya da yolunda giden ve gayet iyi çalışan ekonomik dinamikleri devam ettirmek için kararlar almaktadırlar. Bu tezde ise Avrupa bölgesinde merkez bankalarının aldığı kararların bankacılık karlarına olan etkisi incelenmiştir. Avrupa bölgesinde 12 ülke ve 35 en büyük bankanın 2008 ve 2021 tarihleri arasındaki verileri ile çalışılmıştır.

Anahtar Kelimeler: Para Politikası, Faiz Oranı, Karlılık, Merkez Bankası

ABSTRACT

THE IMPACT OF POLICY IMPLEMENTATIONS ON BANKING FUNCTIONS:
INTEREST RATES AND PROFITABILITY ANALYSIS

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The focus of this thesis is to investigate the consequence of central banks' policy applications on banking profits. These policy decisions implemented by the central banks of the countries directly and indirectly affect everyone's life in that country. Over the years, in crises, wars, economic depressions or vice versa, in a cycle of high prosperity, abundant money, or a normal economy, countries make decisions to overcome these difficulties or to maintain economic dynamics that are on track and working well. In this thesis, the effect of the decisions taken by the central banks in the European region on the banking profits has been examined. In my thesis, the data of 12 European countries and 35 largest banks between 2008 and 2021 were analyzed.

Key Words: Monetary Policy, Interest Rate, Profitability, Central Bank

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1. INTRODUCTION

Banking has a long and rich history in Europe, with the origins of modern banking tracing back to the Italian Renaissance in the 14th century. Over time, banks have contributed significantly to the development of European economies and have become increasingly sophisticated in their operations and offerings. During the Industrial Revolution, commercial banks initially emerged to provide financing to both businesses and entrepreneurs hypothetically. These banks were systematically distinct from investment banks, which focused on underwriting securities and providing financial advice. Apart from these, there are deposit banks that carry out basic banking operations. These various banks located on the European continent have been operated domestically with their own rules and regulations before economic union started. Barbel (1998) mentioned that the European Union's founders France, Germany, Italy, Belgium, Luxembourg and the Netherlands have commissioned a feasibility study for a monetary union. The purpose of a using common currency was indirectly declared in the 1957 Treaty of Rome and took a moving intervention in 1970 by Luxembourg Prime Minister Pierre Werner to develop a three-step plan to achieve monetary union within ten years. After the single monetary policy of the European Union was determined and its sustainability was overcome, different steps started to be taken. With the rise of global trade and finance in the 19th century, European banks began to expand their operations internationally. The result has been an international banking organization called the International Bank for Reconstruction and Development, or IBRD, as well as a global monetary fund acknowledged as the Bretton Woods Institutions. According to Castellarin (2019), the functions of financial assistance to its members and contribution to international financial stability have mainly been exercised by the IMF since the 1970s, when it was originally established to ensure monetary stability. The total amount of the Fund's resources is approximately 1.1 trillion dollars, of which approximately 700 billion dollars are in the Fund's General Reserve Account. With a capital of around 300 billion dollars, the IBRD finances development projects by granting loans to its members. Haq

and Heaney (2012) discussed that the foundation of the Economic and Monetary Union (EMU) has recently been an important systemic change in the global financial markets, increasing competition across the European banking sector. Banks are reassessing their strategic direction, especially in the Eurozone, where there is increasing internationalization, geographic diversification and bank consolidation. In the 20th century, retail banking became a key focus for many European banks, which offered a range of products and services to individuals and small businesses, including savings accounts, loans, and credit cards. In the 21st century, the banking industry has undergone a digital transformation, with many European banks embracing online and mobile banking. Fintech startups have also emerged to challenge traditional banks with innovative digital offerings.

All these developments and the growing banking sector at some point found itself in the crisis. The crisis, which started as a small ball of pot, spread everywhere in a short time and became a universal problem. Berend (2016) mentioned that the collapse of America's biggest mortgage lender triggered a worldwide liquidity crisis which shocked global financial markets and was followed by an international debt crisis, the so called "Great Recession," that has dragged down the real economy. The banking crisis, which was blazingly experienced in developed countries such as in Europe and America and spreading to the whole world, has affected everyone's lives in a significant way, especially in the areas of economic and unemployment growths, causing great recession. As the banking crisis directly affected balance sheets, it resulted in a weak banking system, and leads to a kind of crisis that clings to all other businesses. As a result, the discontinuation of leveraged transactions and decreasing supply of bank loans included in asset sales contributed to one of the main channels where weak banking balance sheets have been an impact on the economy. Moreover, these issues, which started with bad loans, later came to the point of collapse of all sectors and the inability to maintain even the basic operations of banking. The results of liquidity crises and the gradual shrinking of portfolios drove the economy to a standstill. Financial crises have historically resulted in long-lasting negative consequences on the economy. Since the Great Depression on the 1930s, the 2008 financial crisis was the biggest economic trouble. Even though it was only a brief period in most of the developed world, it had a particularly negative impact

on Europe. For instance, in the most recent crisis, the euro area didn't reach pre-crisis GDP levels until 2015, or eight years after the crisis began. The inconceivable soon became a very real possibility: one or more nations may abandon the euro, the euro zone may collapse, or even the European Union may break up. The fact that Europe is dealing with multiple highly complex crises only serves to make matters worse. In fact, the 2008 global economic crisis progressively sparked a protracted, intricate crisis within the European Union. Berend (2016) stated that the unfinished common currency and the monetary union without fiscal unification's underlying vulnerabilities soon came to light and brought the euro to the verge of collapse. It seriously weakened European cohesion and raised the prospect of the common currency's extinction. The recession and the ensuing austerity measures further weakened the idea of a social market in Europe. Welfare systems almost fell apart in some of the member states. After years of success, a well-functioning economic system gave way to a capitalism that was deteriorating, with speculative bubbles, high unemployment, and rising inequality, all of which threatened the welfare capitalism that was the hallmark of the European model. In all these banking developments and periodic crises, money management and the reactions of countries to these situations have become very important. Considering these situations, how central banks read the markets and how they will manage these future crises has become a very important issue.

Central banks are the institutions that have been involved in people's lives since the early 1900s. The central bank's mandate was to act as a lender or a regulator of liquidity in the market when events such as the climate crisis, the risk of default in the supply chain, or a war or epidemic trigger a liquidity crisis in the history. This lesson took place in the beginning 19th century as a result of the Bank of England's routine response to such panics. In those days, banks often first protected their own gold reserves and turned away distressed correspondents. This caused a great panic and harsh criticism of the bank. Bordo (2007) stated that the bank adopted the responsibility principle proposed by economist Walter Bagehot, calling for banks to subordinate their private interests to the public interest of the entire banking system in response. Banks began following Bagehot's rule of freely lending based on solid collateral provided, but with penalties to prevent moral hazard. Moreover, they ensure that money management is carried out in the most

effective way based on the policies determined and trying to shape the economies with the decisions they have taken over the years. When the main tasks of the central banks are examined, the main aim is to preserve the consistency of the currency and money supply, while keeping inflation low, working on the economic growth, increasing the employment rate, and price stability for everyone's best interest. For this reason, the regulations that emerged as a result of the gains learned from the previous crises and the steps taken have a very important place. As everyone can see over the years, many different views and practices have appeared in the markets. People see that banks create drastic movements that often soften the environment or solidify its positions in order to regulate the market dynamics. To illustrate, after bank of England took the above-mentioned steps and policies, it gave no place to any crisis for almost two centuries.

In recent years, the common policy application implemented by central banks is monetary policy. Monetary policy can be expressed as an instrument used by a central bank to manage the supply and demand for money and credit in an economy. Monetary policy is intended primarily to achieve price stability and promote growth and stability of the economy. Apart from a few banks, most would have adopted monetary policy implementations. In recent years, the structure and functioning of finance markets have evolved; a larger economic and policy environment has also given rise to changes in operating methods for fiscal policies. Since the middle of the 1980s, Borio (2000) explained that central banks have increased the market orientation of policy implementation, lowered reserve requirements, increased the flexibility of liquidity management, widened the range of available instruments, sharpened the focus on interest rates as operating targets, enhanced the transparency of policy signals, and shortened the maturity of interest rates serving as the fulcrum of policy. While there are still considerable differences between central banks, these tendencies have led to a degree of continuance of the process of merging that dates back at least to the late 1900s. Most central banks do not have tendency to target autonomy, which oversees determining and declaring monetary policy goals, either independently or in conjunction with the central bank. Tuladhar (2005) stated that the government of Norway shall draw up and submit to the Norwegian Parliament a target which has been formally laid down by regulation. The target is set by the government in the Annual Remit and confirmed in the budget of the

United Kingdom. When set jointly, as is the case in Australia, Canada, and New Zealand, the target is formalized through an agreement, binding for a pre-set period, especially 5 years in Canada, or for the term of the governor, such as in Australia and New Zealand. However, most emerging market countries seem to have more independent than they are, but the government can still exert considerable influence. In most countries, such as Brazil, Colombia, Czech Republic, Poland and Thailand, the Central Bank's Governing Board shall normally be responsible for determining an inflation target. These several strategic and far-reaching policies implementation are now widely accepted according to their politic and economic needs. Many central banks, especially the central banks of developed countries, take these sensitive decisions and act with similar expectations. Their aim is to keep inflation at a determinant level, to ensure price stability and, in short, to keep the country's economy on track.

There are basically two monetary policy implementation which are conventional and unconventional policy. Altavilla et al (2018) stated that these monetary policies have been essential in addressing the weak macroeconomic performance and assisting financial intermediaries. However, some steps offer up a lot of central bank liquidity and reduce borrowing costs, which have favorable effects on bank financing and borrower creditworthiness, respectively. As a result, bank capital is supported, bad debts are decreased, and a cost that banks budget for unpaid loans is decreased as well. There are quite illustrations that the monetary policy is the main element in influencing interest rates is just one of many examples. It is a very important basic function in the management of economic indicators and in line with the expectations in the market. Also, it has a very important place in currency valuation and inflation management. Moreover, reserve requirements are essential or primarily used for monetary control. It is a tool by which central banks are responsible for regulating market demand and supply of money in order to meet economic growth or contractionary needs. In addition to these, it is possible to think of the modest demand for bank reserves as a function of the level of deposits or as a mechanical supply of money by the central bank to satisfy a typically well-mannered needs for the monetary base or reserves at the banks. Finally, a thorough understanding of operational procedures could shed insight on the central bank's eventual ability to influence monetary circumstances, as well as its origin, evolving nature, and

scope in the following of the considerable alterations occurring in the financial atmosphere. Due to this relative neglect, some people have been written about how opinions have changed over the past ten years or so regarding the proper long-term goals for monetary policy or its tactical components. Vaille (2021) mentioned that there are compelling reasons to keep the central bank's balance sheet in place permanently as a tool for monetary policy, particularly to achieve a goal of financial stability. Short-term, secure, liquid securities are in high demand from the private sector, and central banks are uniquely positioned to provide such assets. Less widely known is the fact that operational procedure changes have been similarly important and have been influenced by many of the same factors, namely the profound changes in the financial market's structure inclusive of the wider political or economic environment. Since the late 1900s, central banks in advanced economies have mostly focused on interest rate levels as their investment objective, shortened the interest rate period as the cornerstone of policy, strengthened the market orientation of policy implementation, increased flexibility, i.e. the room for maneuver for them, and increased liquidity, transparency and better management of bureaucratic signals. In doing so, they have reduced reserve requirements and tried to make the widest possible use of the range of instruments available to all, according to market dynamics. These trends and strategies have led to a process of convergence dating back at least to the mid-1900s, although significant differences persist across countries.

One of the most important features of central banks is that they are transparent and independent. Central banks should announce the strategies and actions that will be done in both written and spoken form, by holding periodic meetings. Tuladhar (2005) mentioned that since its role in policy credibility and setting inflation expectations, transparency and public awareness are a vital part of the inflation targeting policy. By providing the capacity to monitor the performance of the central banks, accountability is also ensured through a high degree of transparency. Central banks, whose main function is to manage the money supply and run the economy in certain dynamics, must share how they do and will be doing these functions. This communication needs to be managed fundamentally and in a clear way. Because it directs the market through the perceptions and expectations it creates on people and companies. The ability to hit target interest rates

has repeatedly taken a crucial role in central bank communication integrity. Crowe and Meade (2007) stated that an important result in the earliest research on central bank independence was that, for nations with industrial economies, there was a statistically significant correlation between higher independence and lower inflation. But that inverse pattern has not been the case for emerging countries. Due to the structure and economic dynamics of the country, in some cases, every policy may not be the best way for every country. Individual opinions of central bank initiatives and procedures play a critical role in the overall efficacy of monetary policy. When market interest rates consistently deviate from targets announced by central banks, individuals wonder whether these deviations simply represent flaws in the implementation process or an unannounced change in monetary policy stance. For instance, in the past, some central banks' targets prompted media critics to assert that they engaged in silent easing and took steps to cut market interest rates without making an official announcement of a change to the target. A central bank can plainly explain its policy to market players by continuously hitting its target interest rate.

Quantitative aspects of central bank balance sheets and monetary policy implementation reveal monetary policy applications within the framework of central bank balance sheets. Vaille (2021) stated that one of the issues that the global financial crisis has presented to central banks is the issue of the proper size of the central bank's balance sheet, which is outside the purview of standard accounts of the theory of monetary policy. Its suitable composition is another, less-used, factor. In general, any adjustments to balance sheets elements have an impact on the bank's reserve held at the central bank, and the sufficiency of those reserves. As the starting point of the yield curve, the reserve figure, or overnight rate, is also the starting point for the communication of monetary policy. A monetary policy operation that is itself an element on a central bank's balance sheet. It is frequently believed that the central bank's open-market acquisitions of securities will ultimately have an impact on the market pricing of those securities through a phenomenon known as the portfolio-balance effect. A change in the relative prices of the assets is almost always necessary to persuade the private parties to alter their preferred portfolios if the central bank holds less of some assets and more of others, forcing the private sector to keep more of the former and less of the latter. In addition, a central bank's

balance sheet contains various autonomous balance sheet factor that are not or only moderately controlled by the central bank. Therefore, to neutralize the impact of changes in these factors on the reserve constraint, central banks typically need to adjust their open market operations accordingly. Curdia and Woodford (2010) released that many monetary policy analysis models simply consider a short-term nominal interest rate as if it were directly under the control of the monetary authorities and then analyze how that interest rate should be altered, abstracting completely from the central bank's balance sheet. Undoubtedly, switch in the number of outstanding open market transaction correspond to changes in self-sufficient liquidity characteristics rather than shifts in the direction of monetary policy.

Throughout the years, central banks have acted with many different perspectives on their reserves, but with the crises and economic shocks experienced after the 2000s, a strong reserve holding policy is generally followed. Vaille (2021) mentioned that because of balance sheet policies which allow central banks to affect financial conditions beyond the short-term interest rate by adapting their balance sheets, balances in central banks have grown substantially since the global financial crisis that has driven this phenomenon of the growth balance-sheet. Large-scale asset purchase programs and the provision of central bank funding at non-standard terms and conditions are examples of balance sheet policies. In most cases, central banks regulate the overall stock of reserves available to commercial banks by exchanging government bonds and other securities for reserves in terms of open market activity. Occasionally, central banks also arrange reserves directly to certain banks through discount scope. In some circumstances, we have developed other exclusive methods to manipulate the supply and distribution of reserves in the market. To illustrate, during the recent financial turmoil, the market's ability to distribute reserves smoothly among banks was partially impaired, it leads to significant intraday fluctuations in the average rate of federal funds.

In this thesis, I am going to explore the significance of policy implementations on banking functions related to interest rates and profitability analysis. To examine this, I will work with the data between 2008 and 2021 and analyze how the 35 largest banks in Europe reactions and profits. It has been observed that throughout the past crises and

tremors, the central banks followed the different studies and targets to be achieved, under the most challenging conditions. The banking and economic crises drew a strong response from central banks, by lowering their policy interest rates and adapting several unconventional monetary policies that also affected the slope of the yield curve. Some people or economists even argue that monetary policy is the only tool available to solve economic and financial problems. A weak macroeconomic environment calls for lower policy rates and adapting to unconventional monetary interventions. The main reason for this is the central bank liquidity and low borrowing costs, which may affect the bank financing and the creditworthiness of the borrower. Respectively, bank capital is supported by taking several different steps like non-performing loans are reduced, and loan loss provisioning is decreased as well. However, there might also be some drawbacks to both conventional and unconventional monetary policy easing, such as a possible decline in net interest revenue that might eventually impede the transmission of monetary policy. Therefore, there is more research to be done to determine the overall impact of monetary policy on bank profitability. A further related key question is whether a sustained low interest rate scenario will change the relationship between monetary policy implementations and bank profitability. In this thesis, the effect of monetary policy applied by central banks located in Eurozone, especially the European Central Bank, on banking profits will be examined with several different tests and aspects.

2. LITERATURE REVIEW

2.1. BANK PROFITABILITY

There has been a lot of discussion about the potential negative effects of a low interest rate environment on the banking system, particularly when it persists for an extended period, as a result of the accommodative monetary policy cycle that many countries experienced after the financial crisis. Important policy consequences result from understanding the potential negative impact of these actions on bank's profitability. Low profitability has an impact on banks' ability to raise money internally through retained earnings, which may limit their capacity to lend enough money to the economy. This could reduce bank's ability to withstand against negative shocks, which could cost bondholders', depositors', and ultimately tax payers' money. Therefore, bank profitability supports financial stability and bank's reliability. According to Brunnermeier and Koby (2017), After the Central Bank abruptly alters its monetary policy, a monopoly bank, which has its prior book when the period begins, makes new economic decisions, including purchasing assets and increasing liabilities. There are essentially three investment alternatives available to the bank on the asset side of its balance sheet. First, it can make economically risky loans. Second, the bank may deposit reserves listed at a floating policy rate with the central bank. Third, it can also buy bonds, which are secure investments that produce fixed interest payments. Nevertheless, both conventional and unconventional monetary policies have been necessary in expressing the weak macroeconomic performance and facilitating financial intermediaries in this matter. This is due to the fact that such actions open up a lot of central bank liquidity and reduce borrowing costs, which have particularly favorable effects on bank funding and borrower financial standing.

According to Freixas, X. and J. Jorge (2008), The theory of highly efficient interbank markets, which relies on this assumption due to the massive numbers of transactions and

unusually low spreads seen on these markets, is challenged by the liquidity effect. On the other hand, the system has also been hampered by the inability of current theories of monetary transmission to account for a number of actual findings. The interbank market fills a need that access to deposits cannot by enabling banks to borrow and lend from their peers in order to deal with liquidity shocks. Therefore, non-performing loans and loan loss have been decreased for sustaining bank capital. However, there might also be drawbacks to loosening monetary policy especially low interest rate periods. One of these potential negative effects could be decline in net interest revenue, which would ultimately affect how monetary policy is transmitted. Therefore, the overall effect of monetary policy on bank profitability is still a matter of empirical debate, notably whether the having power of prolonged periods of sparse or even negative interest rates on the tie for monetary policy easing and bank profitability.

They examine the effects of monetary interest rate changes on the two primary factors that determine a bank's profitability at the micro economic level: non-interest revenue and provisions. The macroeconomic consequences of changes in monetary conditions on the same components are examined using an adaptable multivariate macroeconomic model that considers the feedback effects from monetary policy to GDP growth and, to bank conditions. It is also studied diverse effects based on the maturity transformation and strength of the banks' balance sheets.

Since bank profits are critical to bank capital, it is also assessed the influence of non-standard monetary policy on the earnings of stock market for individual banks. It provides a market-based expectation of future profitability. Given that bank, shareholders may pursue excessive risk-taking strategies in order to maximize bank profits and that the majority of bank stakeholders are debtors, there is bank credit risk. This thesis also examines the impact of monetary policy actions on participants' perceptions. CDS Bank spreads cover the impact on all major bank stakeholders, including depositors and taxpayers. Using an event-study approach, we isolate the unexpected component of policy change by analyzing high-frequency asset price movements following monetary policy announcements.

Recent research also highlights a potential conflict between bank profitability and supportive monetary policy. In general, the empirical evidence found in these researches indicates that monetary easing has a detrimental effect on net interest margins and profitability, which is exacerbated in situations with low and stable interest rates. The impact of monetary policy on bank profitability is important to consider the impact arising not only from actual activity, but also from expected real activity. It is found that lower monetary policy rates and flatter yield curves were associated with lower bank profits only when the key variables were excluded from the assessment. According to Alessandri and Nelson (2015), Banks are exposed to interest rate risk as a result of maturity transformation, which can be reduced in a number of ways. First, by keeping interest rate derivatives in the trading book, banks can reduce their exposure to interest rate risk. By putting together asset and liability portfolios with comparable average maturities, large banks are able to successfully hedge their market rate risk. The value of interest rate derivatives like interest rate swaps has a comparable offsetting movement to banking book income flows, with the observation that commercial banks as a whole seem to adopt the same position in derivatives contracts. Recently, institutions that are instability that is more sensitive to financial have a tendency to hedge risk more heavily. It has been discovered that using derivatives makes you immune to shocks from monetary policy. Based on some studies, banks often utilize derivatives products as complementary risk management techniques, and the restructuring of on-balance sheet exposures in terms of the economic situation of the period. In the wake of the 2008 financial crisis, banks' net exposure to interest rate risk was, on average, modest but highly variable between institutions

Other crucial factors on a bank's balance sheet include bank capital, liquidity, non-performing loans, and efficiency. This is hardly unexpected, as the weakening of bank balance sheets during the crisis served as a key justification for loosening monetary policy. Second, accommodative monetary policies have an asymmetrical impact on the key elements of bank profitability, with a positive impact on loan loss provisions and non-interest income offsetting a negative one on NII. This conclusion is based on both our micro and macro approaches, and it is backed up by substantial evidence. According to

the findings, banks with higher operational efficiency and banks with lower asset quality benefit more from a supportive monetary policy.

Fourth, despite the fact that loosening monetary policy does not reduce bank profits, we discover that there is an exposure to a setting with low interest rates for an extended length of time may have a negative impact on bank profitability. Results from our dynamic macro model, however, indicate that the benefits of loosening monetary policy on real economic activity offset the drawbacks of low interest rates on NII. In this context, this work also emphasizes the significance of how changes in monetary policy will affect debtholders' net wealth and credit risk. This is economically relevant because bank debt, including deposits, accounts for the majority of bank value, because bank profits may be higher due to the risk-shifting strategies or may lead to increase zombie-lending tactics.

During the period of extremely low interest rates, the majority of banks see a gain in market-based predicted profitability, as measured by changes in bank stock prices, and a fall in market perception of bank credit risk, as measured by changes in bank CDS spreads. These two findings also suggest that the primary stakeholders in banks are unaffected by looser monetary circumstances. Although this paper is quiet on medium- and long-term distortionary consequences, the data from financial markets generally confirms the results reached from the examination of bank balance sheets, namely that monetary policy easing does not damage bank profitability. This definitely does not imply that the effectiveness of the banking industry in providing credit increases linearly with profits, as the ideal level of earnings for banks is likely to rely on a number of present conditions, and also to change over the course of the business cycle.

2.2. NEGATIVE INTEREST RATE POLICY IN BANK PROFITABILITY

In recent years, it has been a preferred policy for central banks to adopt a negative interest rate policy in order to encourage economic growth and reduce inflation levels. With this application, central banks aim to attract the deposits of commercial banks to their own accounts. Because the money left in the central bank will return to them as negative interest, the banks will prefer to take the money into their own balance sheet

accounts. Low or negative interest rates help banks improve their balance sheets and performance, as well as increase capital gains and reduce loan loss provisions. However, this may also result in a decrease in the net interest margin.

According to Coeure, Since the 1990s, there has been a consistent drop in interest rates, both nominal and real, which is evident in the long-term interest rates on government bonds. The secular reduction in the rate of return on safe assets has been attributed to a number of structural issues, including demographic shifts, a slowdown in the pace of technical development, and a strong demand for safe assets relative to their supply. The impact of this drop in long-term interest rates on monetary policy is significant. Real equilibrium rate, sometimes known as the "natural" rate of interest, is a concept that monetary policymakers frequently use in their reasoning. The interest rate at which output is stable and at its potential level is known as the equilibrium rate.

This is because the basic working principle of banks mainly focus on a spread between loan and deposit interest rates. When market interest rates fall, banks may need to lower their loan interest rates, but they do not want to drive interest rates to negative levels, especially since they know that lowering deposit interest rates to negative levels for individual depositors will cause their customers to withdraw their deposits. This causes the net interest margin to tighten.

Negative and low interest rates also affect the risk-taking potential and perceptions of banks. First, a decrease in the reference interest rate affects banks' risk perceptions and risk tolerances. Low interest rates increase the value of the assets and collateral held by the banks, thus increasing their income and their risk-taking capacity. If low or negative interest rates continue for an extended period of time, this can lead to a credit boom because banks' lending standards may fall. In an environment of low or negative interest rates, bank managers will prefer to hold relatively riskier assets.

There are two main indicators we will consider measuring a bank's profitability: the net interest margin and the ratio of net income to total assets, simply ROA. The net interest margin is calculated by dividing the difference between interest-earning assets

and interest-earning liabilities by the total yielding assets. Since monetary policy has an impact on other items of profit in addition to the net interest margin, the impact of low or negative interest rates on net fees and commissions, net trading income and other operating income, and finally the allowance for loan losses should also be examined.

According to Claessens et al. (2018), this is because depositors and other creditors can transfer to cash forms of savings, therefore banks are reluctant to decrease interest rates for many types of deposits and other obligations below a particular threshold. The net interest margins of banks decrease when short-term interest rates become negative since they are unable to pass these rates on to their clients' applications due to the possibility and even high likelihood that they may invest their savings in alternative financial instruments. Bank margins will shrink as interest rates fall because deposit rates are at a floor, therefore if banks must use lower rates on the asset side of their balance sheet, they will as well. Due to this flaw in the market, banks sell related goods and services in a cross-selling strategy and with higher commissions, together with lower expenses and more credit, to make up for those losses.

2.3.   RISK-TAKING UNDER LOW INTEREST RATES

The publication stated that interest rate levels are the part of the macroeconomic environment. Short-term and long-term interest rates, and the slope of the yield curve determine a bank's profitability at the core level, when analyzing bank balance sheet. The monetary policy literature provides a more detailed analysis of the impact of low interest rates. This is because nominal interest rates are central banks' primary tool for stimulating the economy, therefore, it is important to consider this area of research. It is analyzed the impact of interest rates on overall profitability as measured by various earnings' components like net interest income, non-interest income, provision levels, and return on assets. In this research, there is a dynamic panel model to investigate the monetary policy effect with different perspective. By analyzing a dynamic panel model that takes persistence effects, bank-specific and macroeconomic factors, as well as the interest rate environment into account, this research examines the effects of the low interest rate environment on both bank profitability and bank risk-taking. Using a system generalized

method of moments estimator, the dynamic structure and potential endogeneity are considered. Alternately, a static modeling method is used to reveal important relationships. Net interest income increases with short-term interest rates and there is also a positive correlation with the slope of the yield curve. The relationship was found to be concave for both interest rates and the slope of the yield curve, so the effect is even more pronounced when interest rates are low. They found that non-interest income decreased as interest rates increased. Both short-term interest rates and the slope of the yield curve have a positive effect on risk provisioning. Ultimately, the favorable effects of interest rates and the yield curve slope on net interest income more than outweighed the adverse effects on interest income and provisions.

3. BANKING SECTOR IN EUROPE

Central banks, which are responsible for monetary policy and managing a country's currency, began to emerge in Europe in the 17th century. According to Capie (1994), the Bank of Sweden, founded in 1668, was the first central bank in the world. Moreover, other early central banks included the Bank of England (1694) and the Bank of France (1800). In addition to a central bank understanding that has developed and taken root over the years, economic policies have had an impact on both the structure of the European region and the balance sheets of banks. To understand the relationship between monetary policy and interest rates, it is important to have an overview of the main components of eurozone bank balance sheets. Loans and advances are the main components of total assets. Altavilla et al. (2018) as mentioned that total loans for the euro area as a whole account for around 60% of total assets, whereas loans to the notional private sector are close to 40%. The securities are accounted for 15 % to 20 % of the balance sheet, with government debt accounting for about 3% and equity instruments relating to around 10 % of euro area banks' holdings. Between the other assets, the main components are derivatives, cash and balances with central banks. Deposits account for the largest portion of liabilities, accounting for more than half of total assets, of which deposits from the non-financial private sector account for approximately 45- 60%. Securities issued account for approximately 10-20% of total debt, and capital for just less than 10%. Other liabilities are derivative related in nature. The maturity gap can be summarized in terms of different characteristics of the assets and liabilities of a bank, which relate to its balance sheet structure and profitability. This indicator measures the difference between revaluation periods for a bank's assets and liabilities. Maturity gap is a very important issue for banks, and it is the difference between the sum of the market values of interest rate sensitive assets and interest rate sensitive assets that will mature or revalue in a specified future period. In particular, interest rate changes made by central banks in their monetary policy practices sometimes cause banks' maturity gaps to deteriorate. These maturity mismatch may harm the banks in some way and leave them in a situation that can last until the

liquidity crisis. Rokhmawati (2019) stated that the reality of the market is that a bank cannot manage asset maturity and liabilities to an appropriate extent. The bank benefits from a reduction in interest rates. The bank will, on the other hand, suffer from an increase in interest rates. This is the case when banks finance long term loans with short term deposits. If banks do not adjust their interest income and expenses well, they can be caught in a process that leads to bankruptcy. Recently, as a result of the inflation and economic deterioration after Covid-19 in the USA and Europe, a few banks went bankrupt with the interest rate hikes by the central banks, and most of them are following a very tense process in this regard.

The banking industry has faced numerous crises and scandals throughout its history, leading to increased regulation and reform. In this thesis, I examine the period between 2008 and 2021, but if we look at it from a broad perspective, we see that there are different crises and different sectors that have been affected in the last 30 years. In this context, the period between 2001 and 2008 was marked by two major crises in Europe: the dot-com crash of 2001 and the global financial crisis of 2008. The impact of these crises on the profitability of European banks varied depending on the specific circumstances of each crisis. The dot-com crash of 2001 had a significant impact on the technology and telecommunications sectors, which had experienced a period of rapid growth and speculation during the late 1990s. As these sectors contracted, many banks that had invested heavily in them saw a decline in profitability. However, the impact of the dot-com crash on the broader banking industry was relatively limited, and most European banks continued to report strong profits during this period. The global financial crisis of 2008, on the other hand, had a much more severe impact on the profitability of European banks. The collapse of the house market in the United States resulted in the mortgage crisis, which led to a global credit crunch and a severe economic downturn. European banks were heavily exposed to the US housing market through their investments in mortgage-backed securities, and many banks suffered significant losses as a result. According to data from the European Banking Authority (2011), European banks' profits declined sharply during the financial crisis. In 2007, European banks reported an aggregate profit of €178 billion, but this figure fell to a loss of €15 billion in 2008.

Profitability remained weak in the following years, with European banks reporting an aggregate profit of just €25 billion in 2010.

According to the European Banking Federation (2021), the total net profit of European banks was €65.2 billion in 2020, down 40% year-on-year. This is largely due to the impact of the COVID-19 pandemic on the economy and financial markets. Looking at long-term trends, European banks' profitability has been relatively weak since the global financial crisis of 2008-2009. Eurozone banks' return on equity (ROE) has fallen from a peak of around 20% in 2006 to just over 5% in 2019, according to a European Central Bank (ECB) report because of difficult economic environment, low interest rates and rising regulatory costs. However, there are significant differences in profitability between bank types and countries. The effect of the financial crisis on euro-zone banks was not evenly distributed, and some banks were more heavily affected than others. Banks that had invested heavily in mortgage-backed securities and other risky assets were particularly vulnerable, as well as banks that had taken on high levels of debt. Some banks were also more successful than others in navigating the crisis and adapting to the new regulatory environment. For example, some of Europe's largest banks have struggled with profitability in recent years, such as HSBC and Deutsche Bank, while smaller Nordic banks have been more successful. Overall, the European banking industry faces many challenges to remain profitable in the current environment, including the continued impact of the pandemic, low interest rates and increasing competition from new entrants such as fin-tech companies.

In order to strengthen the banking system and prevent future crises, a few measures have been adopted by European regulators in response to the past crisis. Increased capital requirements, better risk management practices and strengthened regulatory oversight have been implemented as part of these measures. While these measures have helped to stabilize the banking system, they have also put pressure on banks' profitability and contributed to ongoing consolidation in the industry. The Basel Committee on Banking Supervision, a global forum for banking supervisory matters, responded to the 2001 and 2008 crises with a series of regulatory reforms known as Basel II and Basel III, respectively. These reforms were designed to strengthen the resilience of the banking

system and reduce the likelihood and severity of future financial crises. Basel II, which was introduced in 2004, was aimed at improving the accuracy and consistency of banks' risk assessments and capital allocation. The reforms introduced more detailed risk categories, such as operational risk, and required banks to use more sophisticated risk models to calculate their capital requirements. The reforms also placed greater emphasis on the quality and quantity of banks' capital and required banks to hold more capital against riskier assets.

Despite these reforms, the global financial crisis of 2008 revealed significant weaknesses in the banking system and highlighted the need for further reforms. In response, the Basel Committee introduced a more comprehensive set of reforms known as Basel III, which were phased in from 2013 onwards. Basel III introduced a range of new measures designed to strengthen banks' resilience, improve their risk management practices, and increase their transparency. These measures included higher capital requirements, stricter liquidity standards, and enhanced risk management requirements. The reforms also introduced a new global standard for measuring banks' leverage, which was aimed at reducing the excessive reliance on debt that had contributed to the 2008 crisis.

The European banking industry is diverse and encompasses a wide range of institutions, from large multinational banks to smaller regional and regional banks. As such, industry profitability can vary significantly depending on factors such as economic conditions, regulatory environment, and competitive conditions. Overall, the history of banking in Europe is a story of innovation, adaptation, and resilience in the face of challenges and opportunities.

4. PURPOSE AND RESEARCH QUESTION

The purpose of this thesis is to examine the impact of monetary policy practices on banking profits. The effects of policies implemented by central banks in the past have had direct effects on banks. The recession in 2001, which we experienced in the past, followed by the 2008 mortgage crisis, and then the Covid-19 crisis in 2020, left great effects around the world. During these peaks and valleys, economies have been hit on many different occasions, and each time there is a tendency to strengthen itself by being more prepared and planned for the next economic disruption. Basically, it has been seen that the authorities like central bank or regulatory agency and countries can better manage these failures in the future by learning from the mistakes they have made before. While doing this study, I examined how banks in Europe managed their profits from the effects of these crises and central bank practices. I tried to examine the issue from different angles by looking for answers to the following questions:

- How does the 0 or even negative interest rate applied here affect the banking sector?
- How does it affect the industry on the brink of ever-evolving, new practices and regulations?
- What are the profits obtained over the years, the decisions taken in regulating the capital structure, and the risk management practices against future crises?

5. DATA

In this section of the research, I analyze both monetary policy and bank profitability through the bank's unique information. I am also investigating the impact of monetary policy implementation on bank profitability.

The study covers the period from the beginning of 2008 to the end of 2021. I have a panel data and regression model for testing in Stata. I run fixed effect regression with robustness testing. I use quarterly data selected from different sources from the following 12 countries: Netherland, France, Germany, Austria, Italy, the Czech Republic, Denmark, Belgium, Norway, Sweden, Spain, and the United Kingdom. I selected the 35 largest banks from these countries and used their data for this regression analysis. I have collected very large and various data about banks. Basically, 3 types of data groups were created. The first is financial data which are 3M OIS rate, government bond yields, and VIX. These data collected from Bloomberg, and Qontigo which is linked to Deutsche Börse Group. In the second group which is macro-economic data have been selected from Data World Bank, and ECB Data Warehouse. These macro-economic data is country specific like expected GDP, or current inflation. Last part, the data has been taken from the basic operations of the banks to more detailed and diversified areas. It started from the basic banking operation, collecting deposits and lending, and expanded to more comprehensive and technical banking operations. Data sets including non-interest items were obtained. Data which are financials about banks like Tier1 ratios, ROA, and so on are taken from Bloomberg and Refinitiv.

By selecting the data from multiple different points, I did a cross-check about its accuracy. I think it worked best for my thesis, choosing data from multiple platforms, which is the only way to minimize the risk of any errors the data provider might make.

5.1. FORMULA

I begin by using a straightforward formula to assess how monetary policy affects bank profitability:

$$\text{ROA}_{b,c,t} = \alpha_b + \beta_1\,\text{OIS}_t + \beta_2\text{Bond}_{c,t} + \nu_{\,b,\,c,\,t} + \Phi_{b,\,c,\,t} + \varepsilon_{b,c,t} \quad (A)$$

where ROA is the return on assets of a bank, "b" is the selected bank, "c" is the country where the bank is performing the transaction, and "t" is the time in the formula. First, the coefficients of the 3M OIS rates, and then the long and short-term yields of the countries, that is, the ten- and two-years maturity yield differences of the country bonds, were taken. The positive values of these two coefficients would indicate that bank profitability is likely to increase in response to rising interest rates or a tightening of the term structure. The model also includes a set of country- and bank-specific controls, ν, and Φ, respectively. Country specific controls include current and expected and real GDP growth, expected and real inflation, and a measure of stock market volatility (VIX). Bank-specific controls include the net interest margin, non-interest income, Tier 1 capital ratio, the cost-to-income ratio and the lagged dependent variable. The vectors of coefficients ν and Φ indicate the response of bank profitability to the controls used in the regression. The equation includes control variables other than these coefficient or indicators. These control variables which are mainly categorized by country and bank related data used in the regression. Country specific data are mainly three components. First two are Gross Domestic Product (GDP), and inflation with real and expected way. Third is European volatility index (VIX) which measures officially Euro Stoxx 50 Volatility. Bank specific controls includes Capital Adequacy Ratio (CAR), Loan/Deposit Ratio,

By analyzing how shifts in the 3M OIS rate and the slope of the term structure impacts bank return on assets (ROA), or by the coefficients and, equation (A)'s monetary policy impact on bank profitability is represented. It's significant to note that numerous concurrent circumstances that themselves have the potential to affect the planned monetary policy stance and, consequently, the term structure of interest rates, could be

the cause of changes in bank profitability. This means that the ROA changes may take into account both the effects of monetary policy changes and those of additional distracting variables.
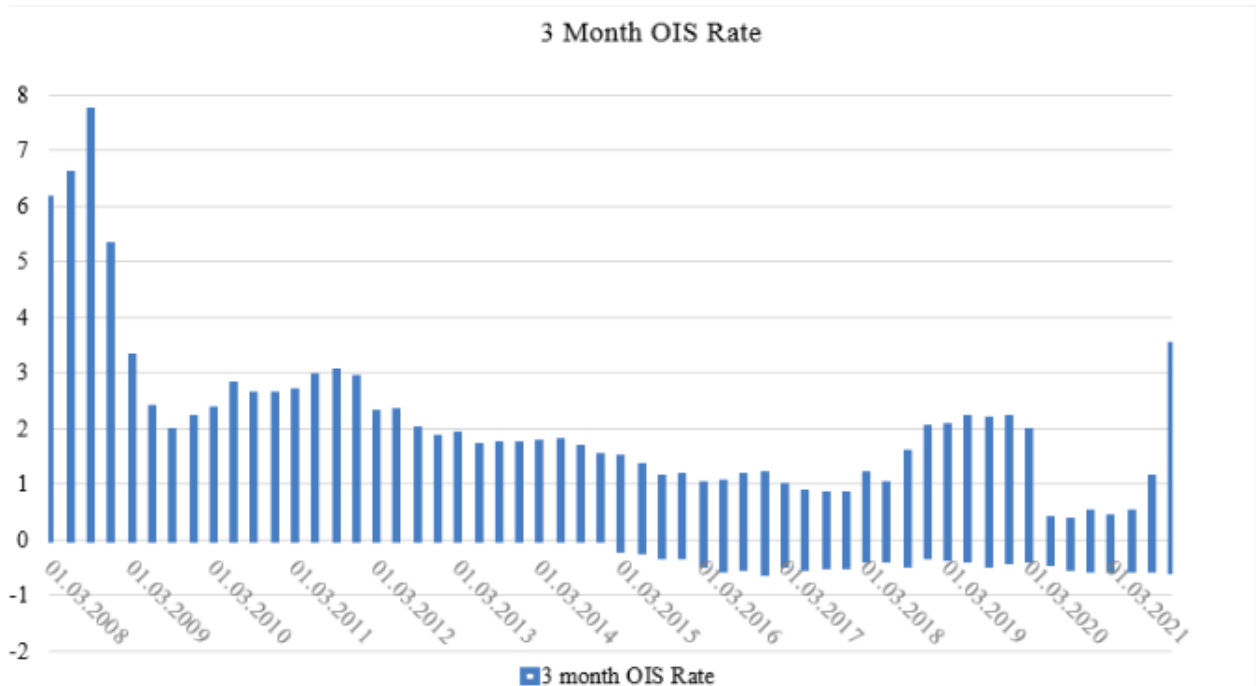
Table 1 - Descriptive Statistics

Variable	Observation	Mean	Standard Deviation	Min	Max
Financial Data					
3M OIS Rate	1789	-0.0039	0.9564	-2.9231	16.0273
Bond Yield Differences	1824	1.5126	1.6417	-0.8190	14.6000
VIX	1960	-0.0394	0.2623	-0.5623	0.7128
Macro-Economic Data					
Real GDP	1893	0.4933	6.0012	-58.9858	150.8017
Inflation	1960	1.4010	1.6353	-21.0000	16.6000
Expected GDP	1960	1.3829	11.0892	-61.0329	96.1987
Expected Inflation	1925	0.4761	5.3429	-27.6284	74.4966
Bank-Specific Data					
Return on Asset	1770	0.5643	1.3479	-1.3455	15.4669
Loan / Deposit Growth	1667	0.0023	9.0544	-226.0551	83.1528
Tier 1 Ratio	1445	13.4532	5.0448	2.0000	28.7000
Cost / Income Ratio	1830	65.4866	46.9645	-107.7589	1673.7250
Net Interest Margin	1570	1.6219	0.7153	-0.2970	4.6811
Effective Tax Rate	1552	61.7029	907.8383	0.4791	35200
Capital Adequacy Ratio	1350	17.3028	3.9699	9.1000	32.5000
Non-Interest Income	1686	3.2779	2.2073	-1.9122	23.2999

Table 1 provides descriptive data for the primary variables used in the estimation. There are 3 main headlines on this table which are Financial Data, Macro-Economic Data, and Bank-Specific Data. The table 1 lists each variable in the main regression; the first column lists the total number of observations that are known for each variable. The second column shows mean of each variable, and other column present standard deviations, minimum, and maximum values of each line. All the variable categories in the table exhibit this variation. For example, the mean of Capital Adequacy Ratio is 17%, and the range of this data from 9.1% and 32.5%. Also, VIX which is the officially Euro Stocks

50 options measures the volatility of Eurex index. The Implied volatility index looks at fluctuating between 12% and 49% and the mean is around 24%.

Graph 1 **- 3 Month OIS Rate**

For the financial data part, I took the 3M OIS rate because this rate is a basic indicator of financial markets. The OIS, on the other hand, represents the central bank rate for a specific time period for a particular nation. It is the primary interest rate that the central banks regulate. Furthermore, there has been a noticeable shift toward OIS for several derivative transactions during the past ten years. In graph 1, it shows the change of 3-month OIS rate between 2008 and 2022. After reaching its peak in 2008, it experienced a sudden decrease. A decreasing trend can be observed in the graph, which experienced ups and downs over time, until 2019. After the year 2019, an outflow and then a sudden falling trend were observed. In addition, as another indicator, I took yield differences of 10 y and 2 y government bonds. These bonds, which show the short-term and long-term borrowing levels of the countries, provide basic information about the economy. The main determinants of these sovereign bonds are credit quality, supply and demand, and finally term to maturity. Fundamental indicators are very effective on bonds like CDS. For these reasons, it is a good provider of information about the general state of the

economy and the country's short- and long-term course. Finally, the volatility index was used in the study. Also known as the Fear Index, this data examines market volatility and investor attitudes and shows the likelihood of low or high risk, and therefore more or less profit, in a particular sector. The VIX is the most accurate predictor of future volatility based on historical volatility. Ahonomie (2008) mentioned that volatility predictions made by using the VIX index are more precise than predictions made by using intraday returns. Forecasts based on the VIX have an upward bias, but they are more accurate in terms of mean squared error than predictions based on historical volatility.

For macro-economic data part, there are four variables which are Real GDP growth, inflation, expected GDP growth, and expected inflation. The market value of all the goods and services produced within a nation's borders over a given time period is measured as the Gross Domestic Product, or GDP, of that nation. According to the economic outlook, it is possible to see sharp increases or decreases in GDP. For this reason, it would be more appropriate to examine real GDP and expected GDP in different ways. To illustrate, recessions are always followed by expansions, and rising yield curves during recessions signal both bad times today and brighter times tomorrow. According to Ang et al. (2006), the prediction of the GDP growth on regression is the difference between the dataset's longest yield and its shortest maturity yield. Future GDP growth is anticipated to be greater the higher the slope or term spread. Real rates are predicted using the same slope measurement. Future expectations and economic trajectories of countries may create expectations above the real GDP, or stagnant or post-crisis economic development expectations may cause these numbers to change in an optimistic or pessimistic direction. Along with these, inflation and expected inflation are a situation that must be overcome, which can cause a great series of problems and these problems can have an effect on every country in the world. There is a general consensus that inflation expectation is an important factor in determining future pricing policy. For instance, wage demands are likely to be impacted by inflation expectations, and pricing decisions made by businesses may also be affected due to future uncertainty. The credibility of the central bank and its determination to maintain price stability are also reflected in inflation expectations. Any serious questioning of their credibility would likely result in an increase in long-term inflation expectations. This has led to many central banks globally monitoring long-term

inflation expectations, with maintaining these forecasts a key part of the process and helping them achieve their objectives. Christelis et al. (2020) stated that a reliable central bank is more likely to improve public confidence in future price stability and economic prospects, which will in turn spur economic growth. To illustrate, a high degree of public confidence in the European Central Bank's (ECB) or Federal Reserve Board's (FED) competence and willingness managing inflation below but near to 2 percent can anchor medium and long-term inflation expectations on this objective and cause departures from the target to be perceived as transient. With these and similar explanations, the market is partially guided and a more transparent and predictable management approach by signaling the steps to be taken in the future is the most ideal management method that central banks are expected to do. It is one of the most basic markets determining processes to follow the surveys or the actual data of the countries and to take a position accordingly. Because of that, expectations and future directions are very important for both sides of the financial agencies. Among them, the most important ones are the growth potential of the country, the data of the production, goods and services sector. The omitting of these variables from the studies can be said to be the biggest point of view that the study has a dubious side.

Table 2 – Monetary Policy and Profitability Results

Monetary Policy and Bank Profitability Results

	(1)	(2)	(3)	(4)	(5)	(6)
3M OIS Rate	0.0288***	0.0207****	0.0225*	-0.0164*	-0.0165*	0.036***
	(0.01)	(0.009)	(0.014)	(0.014)	(0.014)	(0.007)
Bond Yield Differences	-0.0707**	-0.0755***	-0.075***	-0.0571***	-0.0513**	
	(0.035)	(0.035)	(0.033)	(0.024)	(0.026)	
VIX		-0.0033**	0.0411*	0.0619***	0.0836***	
		(0.002)	(0.033)	(0.017)	(0.028)	
Real GDP		0.0091*	0.0132**	0.0081*	0.0076*	
		(0.006)	(0.007)	(0.006)	(0.006)	
Inflation		0.0075*	0.0099*	0.0085*	0.0068*	
		(0.011)	(0.012)	(0.006)	(0.008)	
Expected GDP			-0.004**	-0.003**	-0.0035***	
			(0.002)	(0.002)	(0.002)	
Expected Inflation			0.0016***	0.0002*	-0.0021**	
			(0.001)	(0.001)	(0.001)	
Capital Adequecy Ratio				0.0158***	0.0147**	
				(0.006)	(0.007)	
Loan / Deposit Growth				0.0043***	-0.004*	
				(0.002)	(0.004)	
Effective Tax Rate				0***	0***	
				(0)	(0)	
Net Interest Margin					0.108*	0.1193**
					(0.073)	(0.062)
Cost / Income Ratio					-0.0017*	-0.0021***
					(0.001)	(0.001)
Liquidity Coverage Ratio						-0.0018***
						(0)
Non-Interest Income						0.0143*
						(0.017)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observation	1507	1507	1496	1055	774	934
R2	0.1	0.1	0.1	0.7104	0.6697	0.32

Note: The dependent variable is the ROA. Data are taken quarterly, unbalanced of 35 banks for the date between 1Q 2008 and 4Q 2021. Standard errors aggregated at bank level in parentheses.

***p<0.01 , **p< 0.05 ,and *p<0.1

In Table 2, there are 6 different regressions which is applied for investigation of monetary policy effect on banking profit. In the first equation indicated with (1), only the effect of interest rate policy on banking profits is seen. When we look at the banking profits of 3M OIS rates in this equation, it is seen that there is a statistically significant effect. An increase in interest rates or a flattening in the yield curve affects the banking profit negatively. As the second variable, we see the interest yield difference of 10 y and 2 y government bonds. Also, we see that long-term high and short-term lower interest policies have a negative effect on banking profits. When this equation is expanded, in the second equation (2), in addition to the interest policy, when new variables are added to the equation, the general effects of the variables in the equation on the equation result weaken. The most important point here is the effect of fear index (VIX) on banking profit. Especially when we divide the effect of VIX into 4 quarters, we can say that the effect of the 3rd and 4th quarters has gained importance and has a negative effect on the banking profit.

Furthermore, in equation (3), when the future economic outlook of the expectations is added to our equation, it is observed that this effect of the outlook is seen negative and the expectations have a direct effect on the future realization rates. Additionally, increasing the number of bank-specific control variables reduces the number of available observations. Since the upward trend on the expected growth rates in countries create a positive environment, it is reflected as a positive effect on banking profits. However, below-expected growths have the opposite effect and have a negative effect. Equation (4) demonstrates that outcomes are resistant to the usage of this small sample. The role that expected macroeconomic trends play in our equation is particularly important in terms of changing banking profits. The ROA rises by around 16 basis points for every one standard deviation, or one percentage point, increase in predicted GDP growth. The reasoning for this outcome is that a more optimistic macroeconomic outlook might boost the current loan demand by encouraging investment, which is predominantly financed by bank intermediation in the euro region. The effect of capital structure and loan types has a statistically significant effect on the equation. As a result of the improving economic outlook leading to higher corporate and household income and consequently lower credit risk, banks may be persuaded to boost their lending to the non-financial private sector.

Additionally, Equation (5) shows that the downward trend on the expected inflation is more economically and statistically significant than actual inflation even if the actual data is below the expectation, which may be the result of lower expected future risks as it becomes more affordable for borrowers to repay their loans. In any event, the positive expected GDP growth and effective tax rate are the primary macro determinants statistically and economically explaining bank profitability. The profitability of an average bank has been shown to be statistically significant for changes in the level or slope of our basic definition, the yield curve, even when bank-specific factors are included, or the equation is increased. As can be seen in the equations, when we add more macro-economic and bank specific variables to our equations, the effect grades of the variables change. The importance of 3-month OIS rate and bond yield differences is gradually decreasing. The major issue in these equations is that when the economic indicators are analyzed one by one, these variables do not give it very precise and factual observations, but when analyzed in a broader framework, we see that they give more accurate answers for the reality. While it is an unavoidable fact that the basic indicator phases are important in analyses, it shows that this issue has actually lesser effect in a broad perspective and there are different factors that need to be examined for decision mechanisms.

In equation (6), when I reduce the variables in the equation and put bank-specific data, it can be seen a little clearer and sharper results about profitability. It may be shown that when the effect of the 3 months OIS rate is associated with the bank's basic cost, income and liability, the alteration of its influence is observed more clearly. Net interest margin, the liquidity coverage ratio (LCR), the cost-to-income ratio, and the Loan / Deposit growth ratio are significant bank-specific control factors. As can be seen in the table 2, Net interest margin is significant variable with high effect on the results. The result shows that one point increase in NIM implies positive influence on ROA. In addition to this, cost-income ratio and LCR are statistically and economically significant with their results. According to latest Basel regulation, and some other country specific implications, financial intermediation is the fundamental function of banks in each economy, and therefore they are exposed to inherent risks from both institutional and

market specific liquidity. Banks are maintaining a balanced level of liquidity is essential, which there is evidence from history that liquidity plays an important role for banks and the economy. However, in account of banks to meet this rate, they need to allocate some of their high-quality assets according to the net total cash flow. In the case of banks to meet this rate, they need to allocate some of their high-quality assets according to the net total cash flow. This has a negative effect on the profits of banks. As seen in the results, the increase in the LCR seems to have a direct negative effect on the profit of the bank. In addition, every increase in the cost-income ratio has a negative effect on the profit of the bank. While there may be many reasons for the increase in costs, central bank regulations, market dynamics, or bank's efficiency have a great impact on bank profits. So, the impact of monetary policy on bank profitability depends on the relative efficiency of a particular bank. Altavilla et al (2018) found that both the coefficients of the interaction term between the level and the slope of the maturity structure are positive, suggesting that the impact of monetary policy easing on profitability is relatively positive for banks with low cost-income ratios and high operational efficiency. In short, it could underline that with the relaxation in monetary policy, the expenses of the banks decrease and their efficiency increases. When the political environment eases, central banks cut interest rates to boost economic growth. Lower interest rates encourage consumers to borrow more, effectively increasing the money supply. All these are factors that affect the banking profit positively.

5.2. DETERMINATION OF THE INTEREST RATE

The Euro-zone is a continent with many different societies and countries with various economic dynamics. It contains countries of completely different structures and sizes from north to south, east to west. With the countries forming a large part of the continent forming a union, the European Union is not only an economic union, but also a political union. Although the majority of the countries in the union use the euro currency, there are still countries that continue to use their own currencies. Apart from countries that use euro currency such as France, Italy, Germany, countries such as Sweden, Czech Republic and Bulgaria continue with their own currencies. The main problem here is that the European Union decisions taken jointly can be implemented and all countries accompany

them. For example, although the ECB's Asset Repurchase program was implemented by countries with strong economies during the Covid-19 period, the economic power of some countries has come to a point where it cannot meet this demand. Basically, different dynamics affect a community where every country acts around similar decisions. While some of them are strong in agriculture and tourism, some of them establish the cornerstones of their economy with natural resources such as natural gas or advanced technological products. Therefore, the development is not the same on a country basis, hence the GDP growths or inflation levels do not follow each other exactly. In such environments, the progress of all countries with a single monetary policy has been difficult occasionally. As it can be seen in graph 2, the movement of 3-month OIS and inflation data have been tracked over the years between 2008 and 2021. Basically, it can be said that although it acts similarly in terms of movement, it diverges from each other from time to time or moves more aggressively than other. The tool used as the main control mechanism in the periods when the expected inflation tends to increase drastically is the interest rate instrument. Central banks are used it as a fighting tool by raising interest rates in cases where inflation is in an upward trend or expectations are rising. 3-month OIS rates against inflation, which had risen at the beginning of 2008, reached very high levels, causing inflation to be suppressed and to enter a decreasing trend. One of the most important issues is not to act in a hurry about the interest rate decision in order not to be faced with the trouble of permanent inflation, or one of the most used terms, sticky inflation. In the graph 2, it is observed that inflation enters an upward trend in places where 3-month OIS rates fall very low in some periods.

Graph 2 - 3M OIS Rate and Expected Inflation
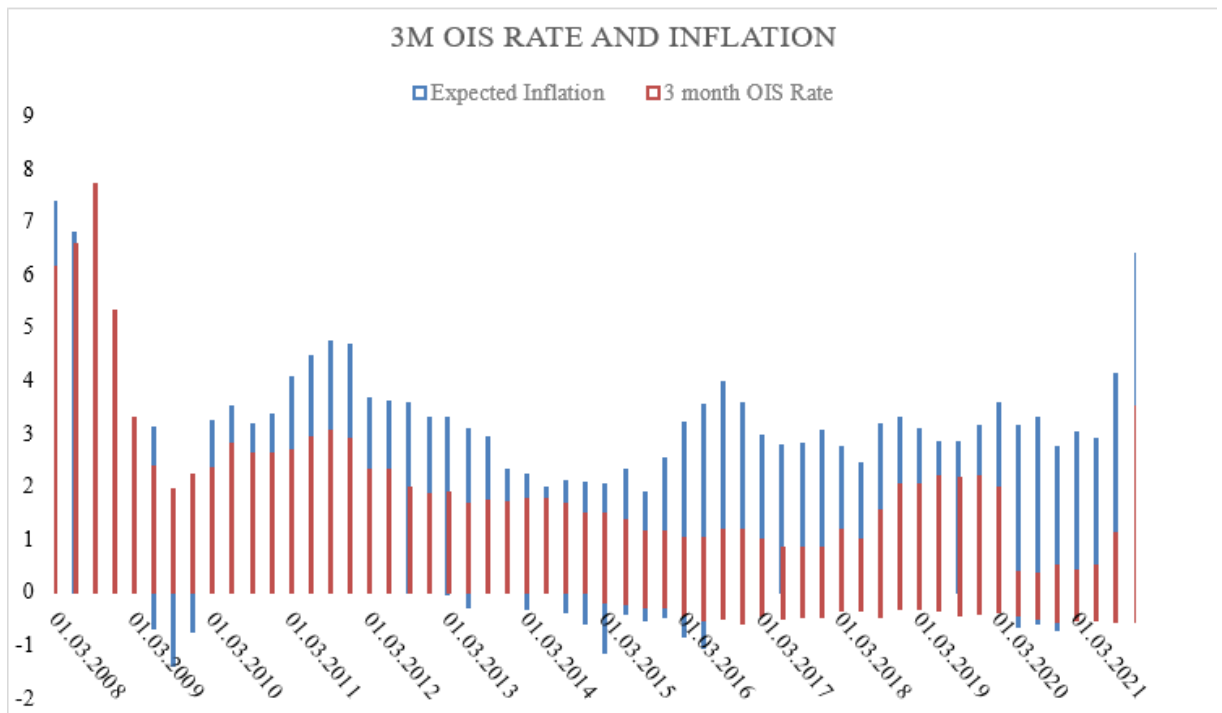
In this case, a differentiation emerges in country-based government bond yields and fluctuating yield differences in different maturities, as well as interest applications being taken with a little delay or with appropriate steps. The zero and even negative interest rate environment, which the ECB passed through after the crises and economic recessions, could not be applied directly by every country in the union, but it also caused stagnation and profit reductions in the banking sector. Haan et al. (2007) stated that the capacity of central banks to influence market expectations on the future course of overnight interest rates, and not just their current level, is crucial for their ability to have an impact on the economy. Although it is very difficult to steer all economies with the developing different future expectations and the past data announced, the ECB and other central banks continued their monetary policy and monetary policy practices according to the needs of the period. The aim is basically to reveal the relationship of monetary policy with interest and interest-based instruments. While examining this pattern, it is necessary to deal with this situation from many different perspectives, but to underline the following, there is a statistically significant relationship between short-term interest rates and banking profitability. Bikker and Vervliet (2017) mentioned that the connection is discovered to be concave and since the short-term interest rate's quadratic term's coefficient has a

negative sign, the effect of a shift in interest rates is amplified when rates are already low. These findings suggest that the chronically low interest rate environment causes the net interest margin, the bank's primary source of income, to shrink. This is consistent with the theory that because of the low interest rate environment, banks find it difficult to make money through their conventional lending and funding activities. That's why the flat yield curve or near zero interest rates have an intensified negative impact on total profitability, making the concave connection more concerning for future. In addition, the price of the bond is shaped by both short-term interest yields, future expectations and the risks arising from the economic outlooks. Since the increase in interest rates lowers the prices of bonds, their existing yields remain below market levels. Bond prices fluctuate a lot in times of crisis or economic growth. Although the periods in which short-term returns are higher than the long-term ones show that the profits of the banks are better, in the long run, when other variables come into play, this profit causes unpalatable situations in the future. For this reason, especially long-term and short-term differences in bond prices give us in-depth information about banking profits. In my study, I took the 10y and 2y bond yield differences, and it was statistically significant that it had a negative coefficient. Since banking profits are negatively affected in very depth and negative interest periods, this yield difference has an inverse relationship with banking profits. As the 10-year and 2-year yield gap widens, decreases are observed in banking profits. On the other hand, the long-term interest rate also shows a slight favorable impact. The long-term interest rates have a consistent impact on bank profitability. Bikker and Vervliet (2017) stated that the short-term interest rate rises together with the net interest margin. Banks increase lending rates in reaction to increasing interest rates and decrease lending volume, possibly through tightening lending rules, and vice versa. A steep yield curve has led to an increase of bank profit margins because banks borrow short term and lend long term in the overall perspective of the system.

5.3. THE RELATION WITH NET INTEREST INCOME AND NON-INTEREST INCOME

There are basically 2 ways in which banks create profit which are interest income and the non-interest income. Interest income is basically obtained by subtracting interest-related expenses from profits from interest-related transactions. The difference between

interest received on loans, investments, and other interest-earning assets and interest paid on deposits and other interest-bearing liabilities, such as borrowings, is known as net interest income (NIM). It is a gauge of how profitable a financial organization is at doing what it does best in terms of lending and borrowing money. Since these transactions are considered as the basic transactions of banking sector, it shows how the core business is run. According to Borio et al. (2015), the retail deposits endowment effect results from the fact that bank deposits are frequently marked down from market rates, usually reflecting some type of oligopolistic power and transaction services. Monetary policy tightening will boost net interest revenue if the markdown shrinks as interest rates fall. As can be seen here, the economic outlook and monetary policy practices are directly related to interest income and expenses. When the table in Table 2 is examined, NIM and NII test as statistically significant. The main point here is that the net interest margin has a positive relationship with short-term interest rates which are 3M OIS rate, and its coefficients are positive. Also, 10y and 2y government bond yield differences were also negatively correlated.

*Graph 3 - The Relation between Net Interest and Non-Interest Income*
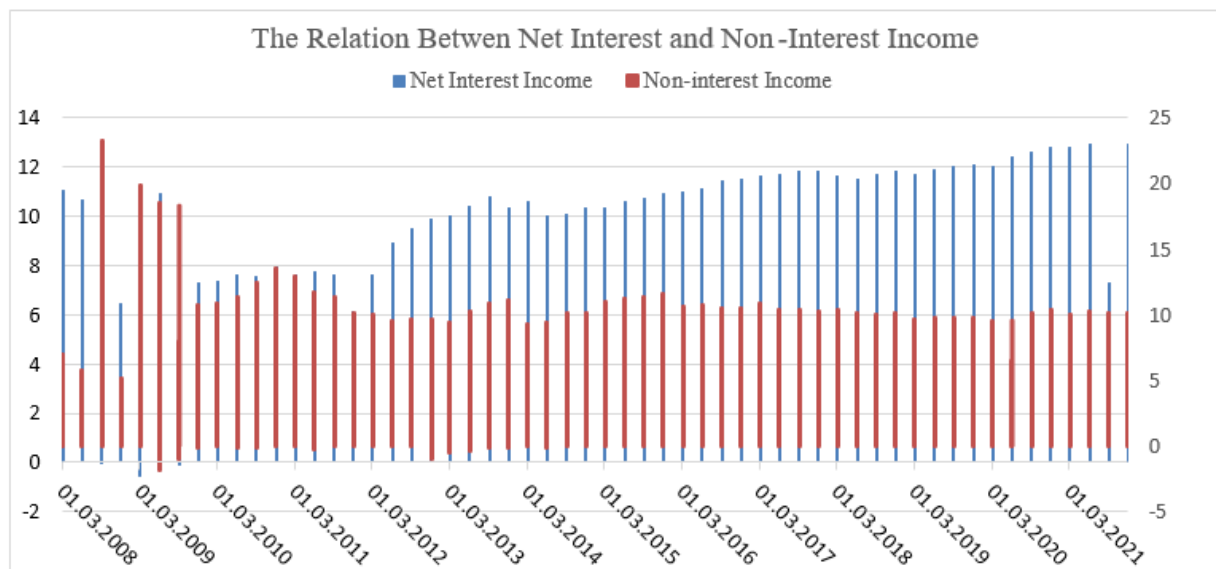
Unsurprisingly, non-interest income and net interest income have an inverse relationship. Banks' non-interest income generally consists of fees such as deposit and withdrawal charges, annual costs for monthly transaction accounts, account maintenance

cost, inactivity charge, checks and so on. Furthermore, credit card companies assess penalty charges which include late fees and overlimit costs. In graph 3, it can be seen that non-interest income and net interest income is quite stable in recent years. However, in year 2008, net interest income is relatively high hence non-interest income is rather low. On the contrary, in years 2009,2010,2011 and 2012, net interest income is relatively low and non-interest income is high level. In times there is imbalance in income distribution, non-interest income is used for equilibrating interest income. Selfin (2021) mentioned that this is despite the fact that a lower interest rate environment could boost income from non-interest activities such as mergers and acquisitions (M&A) and other intermediation activity (e.g., trading) and generate higher fees and commissions. In order to enhance revenue and ensure liquidity in the case of increased default rates, institutions levy fees that produce non-interest income. Altavilla et al. (2018) stated that changes in the value of retained securities and fee and commission revenue are the primary factors of non-interest income. Since lower yields are reflected in higher asset values, the first determinant should, in theory, gain from a fall in interest rates. However, changes in the valuation of securities held by a bank affect their economic value, but profit and loss are only calculated if the securities are accounted for at market prices or if capital gains/losses are realized. It is important to note that this is showed in the book that is the profit and loss account. It should be underlined here that non-interest income is difficult to estimate, and its measurement depends on different variables. Because while it is more possible to measure the effect of a basic criterion such as interest on interest income/expenses, non-interest incomes are mostly used as a tool for periodic needs and to cover the decreases in the bank's interest incomes. Apart from this, the profits obtained as a result of the investments made by the bank in different sectors periodically increase the non-interest investments of the bank. In periods of high profits, banks may tend to invest in different areas. To illustrate, financial intermediaries have consolidated either via mergers and acquisitions or through cross shareholdings as their most obvious reaction to these pressures. The restructuring process and the shift from ordinary bank lending towards investment banking activities such as to improve financial market intermediation by creating new capital market products or advising clients on their pricing and structure of a merger or an acquisition has clearly been involved in consolidation. In turn, the shift in their revenue streams from interest income to noninterest income reflects this.

5.4. VIX AND ROA RELATIONS

With the developing world trade and markets that are open almost 24 hours, individual investors and companies are constantly changing their decisions while investing thanks to easier access to data. For these reasons, the profits of the banking sector in particular area increase a lot, but tend to move very volatile. Crises and difficult economic periods create great sensitivities on banking because they affect banks first place in the economic system. As we have seen in the 2001 crisis, banks that went bankrupt or changed hands are greatly affected by these situations. For this reason, fear indexes such as VIX have great influences on the banking sector, especially individual and some corporate investors, and the reflection of the alarm situation about securities investments on the VIX index is an indicator of this concern. Vuong et al. (2022) stated that when the VIX index rises due to extreme volatility in the U.S. equity market, the stock market typically adjusts lower. In other words, a rise in the VIX index indicates that the returns on the US stock market are trending downward. In graph 4, there is seen contrary connection between ROA and VIX. In the beginning of the 2008, there is a high level of VIX which means that there is an unstable economy, and high level of uncertainty. That's why ROA is very subdued level and continued to very parallel evenness. After 2017, VIX level is reaching historically fallen grade, and ROA is pointing to peak level suddenly. Here, it is clearly seen that profit and growth potentials are observed at very high levels in economies where uncertainty, especially tension and stress do not exist.

Graph 4 - The Relation Between ROA and VIX
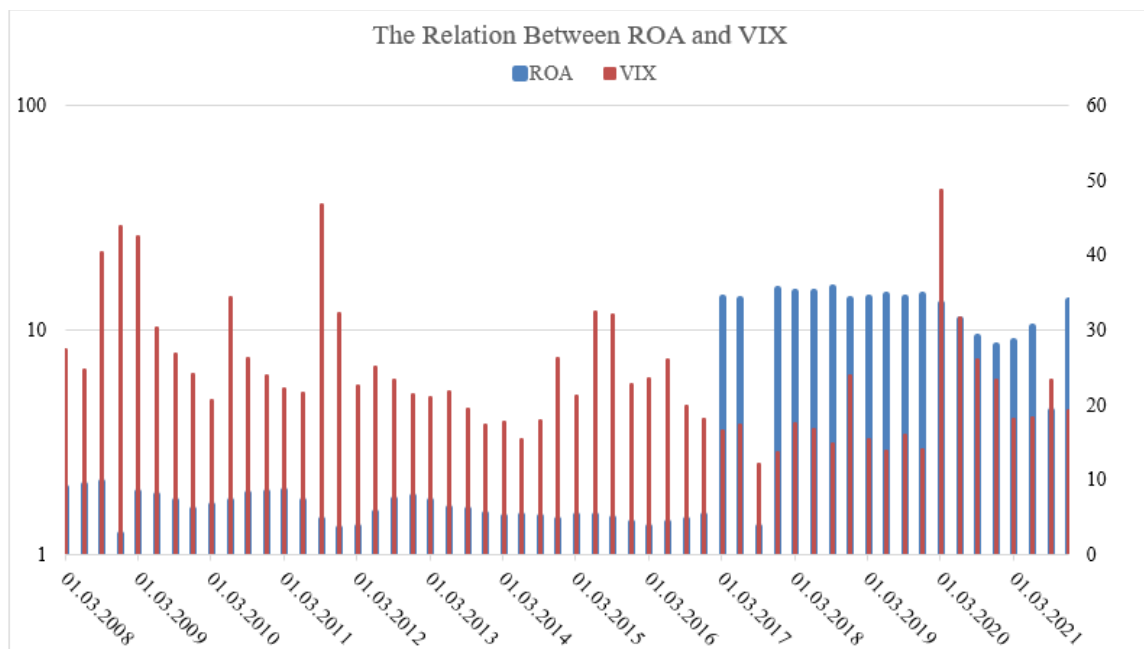
In the regression, I chose ROA as the base banking profit and took it as a dependent variable, and also choose VIX as the main European volatility index as one of the independent variables. The point I observed here is that VIX is statistically significant. However, the most important point emerged when I divided VIX by 4 quartiles and examined how it affects the range. It has been observed that the effectiveness rate increases as a percentage while going from the first quartile to the last quartile. It is observed that banking profits increase in the periods when the VIX is very low and very high. In fact, the most change has been in the 4th quartile. And this explains to us that the change in the banking profit clearly stands out in the periods when the fear index increases. It has been known that banks tend to increase their profits in times of crisis. Since the moments of crisis and tension have a direct impact on the banking sector, banks are trying to make more profit in these periods, partly for the purpose of protecting themselves. Basically, the sudden price changes in the market are reflected to the customers with a delay, and the profit they will gain is aimed to increase even more. Meiselman et al. (2020) mentioned that for non-interest revenue, the amount of earnings related to market activities outside the core lending business, the association between pre-crisis profits and tail risk is far stronger. Although a higher share of non-interest income

is linked to higher systemic risk contributions, bank's attention is on volatility in level rather than just share of income at this time. Although it is observed that there are growing by increasing profit diversity, especially with uncertainty, in the pre-crisis periods, this is not an efficient profit, but it is observed as a final increase before sharp decreases in times of crisis. It would not be wrong to accept the fear indicator as a compass of a crisis or a smaller situation, but it would be correct to call the rises and sharp cuts as the pre-crisis period. As a result, the study here shows that when we divide the VIX as 4 quartiles, the 1st and 2nd regions are the regions that we could describe as normal, while the 3rd and 4th regions can be characterized as increased fear. When we analyze the banking profits on this chart, increases in ROA are seen in the 3rd and 4th regions of the index. These increases have been positive; however, if these increases on VIX continue for a long time, there is a negative pressure on the ROA. In this way, we can interpret that the profits of banks have increased in 3rd or 4th quartile which are outside the regions where normal market and economic dynamics are observed.

Table 3- Monetary Policy and Different Profitability Eleme

	EPS	NIM	NII	ROA
$Y_{(t-1)}$	0.0207*	0.8678***	0.8869***	0.8283***
	(0.047)	(0.039)	(0.029)	(0.029)
3M OIS Rate	0.0999***	0.0363***	-0.0049*	0.0049*
	(0.047)	(0.009)	(0.012)	(0.005)
Bond Yield Differences	-0.0429*	-0.0025***	0.0451***	-0.0027**
	(0.048)	(0)	(0.019)	(0.001)
VIX	-0.0023***	-0.0033*	0.0691***	0.0384***
	(0.001)	(0.012)	(0.023)	(0.012)
Real GDP	-0.0083**	0.0006*	-0.0022***	0.0025*
	(0.005)	(0.001)	(0.001)	(0.002)
Inflation	0.0071*	-0.0002*	-0.0003*	0.0048**
	(0.007)	(0.002)	(0.005)	(0.003)
Expected GDP	0.0033***	0.0002*	0.0012***	-0.0004*
	(0.001)	(0)	(0.001)	(0.001)
Expected Inflation	-0.0004*	-0.0001*	-0.0006*	0.0007*
	(0.001)	(0)	(0.001)	(0)
Loan / Deposit Growth	-0.0013*	0.0006*	-0.0018**	0.0007*
	(0.001)	(0.001)	(0.001)	(0)
Capital Adequecy Ratio	0.0025*	-0.0017*	0.0154***	0.0007*
	(0.008)	(0.002)	(0.004)	(0.002)
Tier-1 Ratio	0.2505**	0.1249*	0.8011***	0.1795**
	(0.135)	(0.084)	(0.186)	(0.038)
Cost / Income Ratio	-0.006***	-0.001**	-0.0023*	-0.0005*
	(0.001)	(0.001)	(0.002)	(0)
Effective Tax Rate	0***	0*	0***	0***
	(0)	(0)	(0)	(0)
Bank Fixed Effect	Yes	Yes	Yes	Yes
Number of Observation	897	803	794	881
R-squared	0.10	0.96	0.96	0.89

Notes: EPS (Earnings Per Share), NIM(Net Interest Margin), NII (Non Interest Income) , and ROA (Return on Asset) are used as a dependent variable for each of this regression model. Y(t-) is denoted as a lagged varibles. Data are taken quarterly, unbalanced of 35 banks for the date between 1Q 2008 and 4Q 2021.
***p<0.01 , **p< 0.05 ,and *p<0.1

Banking profits are analyzed in terms of monetary policy implementations. Here, all methodology is made by taking ROA as the dependent variable. Also, examining how the results are by changing our dependent variable data will provide a good perspective for the study. It selected 3 different data as dependent variables and performed the regression tests again.

The first variable I get here is Earnings per share (EPS). The issue I wanted to test here was whether there would be any change in the results when ROA or EPS is taken. Because when we examine ROA, it basically shows how much profit the company makes and the contribution of this profit to the company. EPS, on the other hand, is the amount earned by the company's partners or each share. Although EPS and ROA are directly related, EPS does not give us much information about the company. It is obtained directly by dividing the company's profit by the total number of shares. ROA, on the other hand, is a measure used to evaluate how efficiently a company can generate profits with the assets it owns. When the results are examined, it is seen that similar results are obtained with the results made with ROA. It has a similar relationship with the basic interest rate policy and the yield curve difference. The more important detail that emerges here is that there is a closer and more responsive relationship with the fear index (VIX). EPS is directly affected in environments of fear and tension, and it is clearly seen here as well. In the results here, we see that any positive expectation about the course of the country and the announced figure have a positive and statistically significant effect on EPS. The effect of Expected GDP here is huge and besides, the Cost / Income ratio has a statistically significant effect. In cases where the expense items of the company exceed the income items, or any decrease in income, a direct effect is seen on the EPS and immediately diverges as negative.

In the second column, there is the regression analysis based on net interest margin. Not surprisingly, it is found that 3- months OIS Rates and government bond yields have a statistically significant effect. Although the effect of short-term interest rates on the net interest margins of banks is unquestionable, these results show us that the European central bank policies, which followed a negative interest rate policy for a long time, increased the sensitivity to interest rates and the validity of the policies followed here is

also evident. In addition, banks have net interest margin sensitivity in the relationship between cost and income. The profit of the banks is basically in direct relationship with the interest income and expenses, and in the Net interest margin account, it is calculated by subtracting the interest expense from the income obtained by the bank and dividing it by the total assets. Therefore, although it is directly related to the other Cost/income equation, it also shows the status of the bank more clearly by including the items such as other income like foreign exchange and derivative transactions, or third-party product sales, which the bank obtains, by adding the profits other than the main banking transactions. Negative or low interest rates aid in enhancing the performance and balance sheets of banks, resulting in capital gains and a decrease in loan loss provisions. Low or negative interest rates, however, may also translate into smaller net interest margins. This is due to the fact that banking is a spread adjustment, where the interest rates on loans and deposits differ. Since this situation will cause the bank customers not to keep their money in bank deposits, they have to endure the negative interest spread or produce solutions to manage this situation. López-Penabad et al. (2022) mentioned that ignoring to pass negative interest rates onto customer deposits, banks' profitability related to maturity transformation will be negatively impacted, slowly reducing their equity capital and deteriorating their financial stability. By raising fees and commissions and lowering operating costs, banks can make up for the margin reduction.

Last variable is Non-interest income, which is including capital gains, fees, and commissions as its key drivers. As we can see that government bond yield differences have a statistically significant relation with NII. It is not surprisingly that it gives an inverse response according to the relationship with interest. For this reason, in the third regression, which does not have a statistical relationship with interest, it is observed that the interest rate has an indirect effect but still very decisive, and the opposite of the relationship between interest and government bond yield difference, but it is statistically strong. In addition, GDP is statistically significant. Also, there is an opposite side of relationship between expected GDP and Real GDP. It is widely believed that a country's debt burden is sustainable if the country's debt interest rate is below the expected GDP growth rate. In practice, however, the relationship between interest rates and GDP growth tells us more about a country's income distribution than it does about debt sustainability.

That's why expected GDP growth is a positive effect on NII, but real GDP is a completely different side of it. This situation can be expressed as follows for the euro area. Since the growth, like GDP, expectations mean that the economy is developing and business is going well, low interest rate and even negative interest rate policy will continue, so banks should concentrate more on non-interest income and there is a situation where income is generated for interest losses. Finally, it appears to be statistically significant with CAR and Tier1 ratios. The main reason for this is the direct relationship of its to the bank's core capital and risk weighted assets. NIIs have always been important to bank as they are revenues provided directly to banks and independent of the underlying operation. Xu et al. (2019) stated that the research regarding the influence of non-interest income on risks is conflicting. A few years ago, several experts discovered that the type of non-interest income affects the impact on financial stability. In times of crisis or negative interest rate environments, NIIs, which are in the security position of banks, are actually directly related to credit risk and NPL (non-performing loans). All these reasons play an important role in the bank's strategy and profit margin adjustment in non-interest incomes and have a balance role with its increases and decreases.

6. CONCLUSION

Since the turn of the 20th century, central banks have played a vital role in the economy. They make sure that financial management is done in the most efficient manner possible based on the policies chosen and work to influence the economies through the decisions they have made over time. The term defined as "bank of banks" has started to become popular, and the name conjures up central banks. Because of these important tasks they must follow, their choices and actions are very important to financial systems from the ground up. Although everyone can see how many viewpoints and behaviors have emerged in the marketplace throughout time, it can be observed that banks make abrupt changes to the atmosphere occasionally to soften it and sometimes control the market dynamics. All because of these, monetary policy has become a popular policy tool used by central banks in recent years. The activities made by a central bank to control the supply and demand of money and credit in an economy are referred to as monetary policy. Price stability as well as economic stability and growth are often the objectives of monetary policy. Most central banks, with the exception of a few, would have implemented monetary policy. Over the past few years, changes in the structure and functioning of financial markets as well as in the overall economic and political climate have led to ongoing changes in the operational procedures for monetary policy. Central banks have shifted their policy implementation towards the market since the mid-1980s, decreasing reserve requirements, increasing liquidity management flexibility, broadening the range of available instruments, sharpening interest rate targets as operating targets, improving transparency of policy signals, and decreasing the maturity of interest rates as the fulcrum of Policy. While there are still a lot of differences between central banks, these tendencies have allowed the process of convergence, which at least dates back to the 1970s, to continue to some extent. This strategic and comprehensive policy implementation has now gained widespread support. Most of the central banks, especially

those in developed nations, make these delicate decisions and behave in ways that are expected of them.

In this thesis, I did research on the effect of monetary policy practices on banking profits. I have chosen Return on Asset (ROA) as the core banking profit. The biggest reason for choosing ROA is that a performance metric that takes the company's asset base into account. ROA is an excellent tool for identifying differences between businesses in the same sector as well as for comparing businesses that are comparable to one another. Also, it gives details on the connection between the money earned and the assets used. More, all asset types are considered, including working capital, real estate, machinery, and stock investments. In addition to all this, it is an excellent indicator of managerial effectiveness, and the focus of ROA is on assets used to generate returns for shareholders and investors. As can be seen, ROA is an easy and successful indicator to be taken as core banking profit and compared from many different perspectives. The dependent variable is ROA for this thesis, and independent variables can be divided into three categories. The first category is financial data which are the control mechanism for central banks. These variables are the fundamentals that I analyze the implementation of the monetary policy. First of all, I took 3M OIS rate which shows the level of short-term borrowing in the markets in general, it is also a prevailing information and guide about the economy. In addition, I took the yield differences of the 10y and 2y year bonds issued by the treasuries of the countries in the Europe. This gives a general idea about the short and long-term expectations of the general economic situation and also the country risk situation by giving the difference of the 10-year long-term yield of the banks and the 2-year yield curve, which can also be considered as short-term. The difference of this indicator from the basic interest policy is that the country risk premium is involved and it is affected with the current economic view and future economic view according to the maturity of the bonds issued by the countries. It is more volatile and reacts more quickly to current market dynamics than the basic interest indicator. And lastly in the first part, I chose the VIX, which is called the fear index. This is one of the basic indicators consisting of economic dynamics and giving information about the general situation and course of the economy. In the second part, there are country-specific data which are European volatility index (VIX), real GDP growth, expected GDP growth, and inflation and

expected inflation. These indicators are the most basic indicators that show the general situation and future expectations about the countries. In the last part of the data, there are bank-specific data which are fundamentally loans, deposits, costs and all bank related information on used for the thesis.

The results indicate some solid findings about monetary policy and bank profitability. First, easing in monetary policy, which can be summarized as either lowering 3-month OIS rates or a flattening of the yield curve, is only effective in the absence of adequate controls on the endogeneity of monetary policy, particularly on banks' financial health. This led to lower bank profits with most of the aspects, especially net interest margin. It covers not only the crisis period, but also current and projected macroeconomic and financial conditions. Altavilla et al. (2018) underlined that bank profitability is cut by approximately two basis points every other year of lower interest rates. Assuming that the macroeconomic outlook is not changed, the cumulative effect on bank profitability of an additional year under a low interest rate environment. The main reason for this is interest rates, which are the main basis of deposits and loans, which are the main operations of banks. The fluctuations on the short-term interest rates experienced greatly affect the long-term operations of banks. An inaccurate monetary policy decision can cause great damage and mistakes on banks. For this reason, it is necessary to maintain this balance very well and try to do what is best decisions for the economy in all perspectives. In addition to this, the most important issue is what the central banks and banks will do against the risks that may be encountered in the future. Considering the past crises and their consequences, regulations and measures should be taken for the agenda all the time. Both supervisory and regulatory institutions and banks need to take decisions considering their own structural and financial conditions. Important issues such as the maturity gap, the size of the balance sheet and the positions that can be taken against cash crises should always be taken into account and decisions should be made according to the future expectations. Since the decisions taken by banks to keep profits at certain levels or the monetary policy practices of central banks such as economic growth and inflation targets are always the most important and current issues, it is always necessary to be careful while making these decisions.

A second piece of evidence comes from a data model containing individual bank balance sheet data and a dynamic macro model containing more aggregated data, showing that various components of bank profitability are sensitive to changes in monetary policy. It indicates that the impact of monetary policy alterations on overall bank profitability is subdued as the impact of non-interest income on interest rate movements and decreasing the credit reserves largely offsets the impact on net interest income. The decrease in profits due to the decrease in interest rates is tried to be balanced with other variables, which are non-interest income. Banks try to create other profit-making items like intermediation in mergers and equation, fees and commissions, dividends received, income from banking services, income from sales of assets, or dividend in these periods. The negative impact is offset as bank profitability is adversely affected by net interest income up to some point, but this situation is not very sustainable. More importantly, our analysis shows that prolonged periods of low interest rates can adversely affect bank profitability. However, our results suggest that it will take a long time for monetary policy to have a material negative impact on bank profitability through accommodative policy, as harmonious monetary conditions support real economic activity and, in turn, have a positive impact. This effect of non-interest income does not provide a long-lasting contribution. The fact that the low interest rate policy or flattening yield curve damages the banking profits in long periods is inevitable. All of these facts indicate that it will take time to maintain the financial conditions vigorously after a stable economic situation at macro and micro level is reached. Moreover, monetary easing tends to be relatively beneficial to more beneficial for banks that are more efficient than others and have lower asset quality. At the same time, banks that are actively involved in maturity conversion activity tend to be more bullish on maturity.

Finally, it is observed that banking profits decrease in times of crisis, especially in periods when the VIX index increases too much. Also, it can be shown as one of the main reasons that investors turn to less risky instruments. Since these moments of crisis create a perception that central banks should intervene on the discriminatory market side, these situations are priced immediately, and positions are changed in this way. For this reason, great decreases are seen in banking profits and pricing in this area. In the management of these crisis moments or periods, it is observed that the first thing I have examined from

the past to the present is the change in short-term interest rates. In the relevant years of this study, there are both crises and convulsions, as well as periods when the economic order works well. This study shows that while the banking profits decrease during the crisis, long-term low interest rates damage the basic structures of the banks, and banks are always prepared for these risks by opening other income-generating doors to these situations. Even if this is not the same for the whole sector, it would not be a correct approach to say that the long-term low interest rate policy of monetary policy has a negative effect on banking profits for well-managed large banks. Although this situation creates a systemic risk, good economic growth and positive pricing for the future are among the basic criteria sought for the banking sector. When these conditions are met, the systemic risk that occurs is very low and the next quarters with strong profitability are priced.

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EDUCATION

Turkish-German University, Institute of Social Science, Istanbul, Turkey (Jan 2021 – August 2023) M.S. in International Finance

Bilkent University, Undergraduate Study, Ankara, Turkey (2014-2020) B.A. in Banking and Finance

Burgundy School of Business (via Erasmus Student Exchange Program), Dijon, France (2018/2019, Fall Semester)

Ahmet Kanatlı High School, Eskişehir (2010-2011)

H. Sami Boydak High School, Erzurum (2011-2014)

EXPERIENCE

Turkiye Is Bankası, Treasury Department, Assistant Treasury Specialist, İstanbul
⌞SEP⌟(04.01.2021 – Present)

Türk Dıs Ticaret Vakfı, Intern, Ankara (10.06.2019 – 07.07.2019)

Özkan Demir Çelik A.Ş., Intern, İzmir (23.07.2018 – 17.08.2018) ⌞SEP⌟

⌞SEP⌟

LANGUAGE SKILLS

Turkish: Native

English: TOEFL IBT Total 89 (Reading:20 Listening: 25 Speaking: 21 Writing:23), Nov 2020

French: DELF B1, March 2019