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Turkish Currency Crisis – Spillovers Effect on Banks

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Master Thesis in Finance

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Abstract

This study aims to analyze the stock price reactions of 553 listed banks across 15 countries to the currency crisis and political instability in Turkey, within the period of January 2020 and November 2020. The broad aim of this study is to examine the effect of the presence of banks in Turkey on the excess banks' stock returns within the examining period. Excess returns are calculated as the difference between the actual return of each bank and the bank index in each country. During this period, Turkey receives warnings from European Union for sanctions as the east Mediterranean crisis worsens. Sanctions that include tough economic measures unless progress is made in reducing growing tensions with Greece and Cyprus in the Eastern Mediterranean. In addition, U.S presidential elections take place. Many possible flashpoints between NATO allies were smoothed over-under outgoing President Donald Trump. Trump and Turkish President Recep Tayyip Erdogan have a warm relationship. There is a risk that some of those tensions will erupt under a Joe Biden administration and as a result uncertainty during this period spikes (Turak N. 2020). More precisely, the main motivation of this study is driven by the need to answer the question of how this tough measure will affect the Global Economy. For my estimation, the ordinary least squares (OLS) model will be used. The research project will require data collection which will be acquired from SNL financial, Global Financial Database and investing.com. Results find that 11.20% of the variance in bank stock returns can be predicted from the variables non-performing loan to total loans, interest income to average assets, dividend payout ratio, efficiency ratio, loans to total assets, liquid assets to total assets, interest expense to average assets, presence in Turkey, Spread and County. The results reveal that the key variable Turkey presence is statistically significant in 1% 5% and 10% significant level and its coefficient is negative as expected. A bank that has branches in Turkey has a decrease in stock returns 0,293 percentage points more than if a bank has no branches in Turkey. Although, throughout this study, this research faces certain limitations. Despite the fact that we used market adjusted returns and several other control variables, the results should be interpreted with caution as it would have been optimal to have access to a larger sample.

Keywords: banking crisis, currency crisis, Turkey, excess returns

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Table of Contents

1. INTRODUCTION	4
1.1. TURKISH CURRENCY CRISIS	7
1.2. Exchange rate	7
1.3. Speculation	7
1.4. Interest Rates	8
2. TURKISH CASE	9
2.1. Timeline.....	9
3. LITERATURE REVIEW	12
4. EMPIRICAL METHODOLOGY	19
4.1. Data Collection	20
4.2. Inclusion and exclusion criteria	21
4.2.1.Exclusion Criteria	21
4.2.2.Inclusion Criteria	21
4.3. Data Analysis	21
4.4. DEPENDENT VARIABLES	22
4.4.1.Excess Returns	22
4.5. INDEPENDENT VARIABLES	22
4.5.1.Non-Performing loans	22
4.5.2.Interest income	23
4.5.3.Dividend - Payout ratio	24
4.5.4.Efficiency ratio	24
4.5.5.Loans to Assets	25
4.5.6.Liquid Assets to Assets	25
4.5.7.Interest expense	25
4.5.8.Control Variable	26
4.5.9.Dummy Variable	26
5. DESCRIPTIVE STATISTIC	27
5.1. VARIANCE INFLATION FACTOR (VIF)	31
5.2. CORRELATION MATRIX	31
5.3. SCATTER PLOTS	32

6. EMPIRICAL ANALYSIS	36
6.1. Empirical Strategy	36
6.2. STATISTICAL MODEL	37
7. EMPIRICAL RESULTS	38
7.1. STATISTICAL RESULTS	38
7.1.1.OLS regressions model (PART A)	38
7.1.2.Robust OLS regressions model (PART B)	41
8. DISCUSSION	45
8.1. Limitation of study	46
8.2. Future option	46
9. CONCLUSION	47
10. BIBLIOGRAPHY	49

List of Figures

Figure 1 Research onion for futures studies	20
Figure 2 Turkey Listed Banks.....	23
Figure 3 Scatter plot – NPLLOAN vs Er	33
Figure 4 Scatter plot – INT INC vs Er	33
Figure 5 Scatter plot -DIV vs Er	34
Figure 6 Scatter plot – LOANS vs Er	35

List of Tables

Table 1 1 Banks with branches in Turkey.....	26
Table 1 2 Descriptive statistic All countries	29
Table 1 3 Frequency of each group for Country and Turkey Presence variable.....	30
Table 1 4 VIF - Variance Inflation Factor.....	31
Table 1 5 Correlation Matrix.....	32
Table 1 6 OLS regressions model - PART A & Robust OLS regression model - PART B	44

INDRODUCTION

After the financial deregulation process and the fall of the Bretton Woods system, currency crises have been a major threat to developing countries. Turkey has faced significant currency crises in recent decades. The recent volatility of Turkish lira created a flare in the scientific community. Economists ring bells to take action to reduce adverse impact. Spain's BBVA BBVA.MC, Italy's UniCredit CRDI.MI, France's BNP Paribas BNPP.PA, Dutch bank ING INGA.AS and Britain's HSBC HSBA.L are the most exposed to Turkey and vulnerable to its free-falling currency.¹ Turkey's problem fuels risk aversion among investors worried about financial turmoil.

The globalization process has led to a high level of economic and financial interdependence across countries in the world. As a result, investors are cautious about one further sharp depreciation of Turkish lira. The shocks that occur in one particular market seem to be spreading to other countries, which peaked further after the collapse of the Lehman Brothers in September 2008. Therefore, economic interdependence is said to create transmission, especially under unusually large country-specific shocks.

The main goal of this paper is to find a way to measure the exposure of banks to a currency crisis. Banking sector and especially Europe bank have most exposure to Turkey due to decade old links.² Some investors believe Turkey's economic troubles are self-inflicted and bound to stay isolated, but some others believe that they are symptoms of a malaise that will spread to the globe in the coming months.

There are three main motivations for investigation based on this topic. First, Turkey is the seventh largest economy in the world and a political and business partner for many European countries. Turkey's lira lost more than 20% of its value in 2020, which is considered the second biggest drop in emerging markets. On the other side, Turkish economy grew 1.8% during 2020 despite the pandemic.³

Second, the warns to Turkey from European Union for sanctions as the east Mediterranean crisis worsens. Sanctions that include tough economic measures unless progress is made in reducing growing

¹ <https://es.reuters.com/article/us-turkey-currency-eurozone-banks-idUKKBN1KY1WT>

² Bank for International Settlements

³ Hedge Fund Veteran Shorts Eurozone Debt on Turkey Fallout - Bloomberg

tensions with Greece and Cyprus in the Eastern Mediterranean. How this tough measure will affect European Union is a question that needs to be answered.

Third, Moody's downgraded Turkey's debt rating further into junk. Who is at risk? European banks hold the biggest part of claims to Turkey according to data from the bank for international settlement. In combination with further drop in lira, Turkey will struggle to pay foreign currency debt contributing to an increase in non-performing loans within Global banks.

Non-hedged loans in foreign currency to the non-financial sector are extremely widespread in Europe and pose a substantial credit risk caused by the exchange rate induced for financial sectors. For example, loans denominated in Swiss franc (CHF), that are popular in Eastern European countries, could trigger simultaneous financial failures if the devaluation of domestic currencies prevents debtors from paying their loans. As a result of the "common market shock," foreign currency loans pose a systemic risk (Yesin, Pinar 2013).

In addition, bank performance, risk-taking is also a major contributing factor to the economic crises. The regulation of banks is different from country to country. A primary difference in freedom is that banks are permitted to follow a variety of different activities. In fact, there are opposing arguments suggesting that either a less stable or a more stable banking system may generate a laxer regulatory regime. Relaxing banking restrictions can promote bank risk-taking by widening the range of activities of a bank. But relaxing restrictions can also increase bank diversification opportunities, thus reducing risk-taking. Regulators would want to examine bank risk-taking incentives while these two opposing choices are available, since these incentives will rely on the ultimate implications of extending the range of actions allowed to bank.

Banks are thought to be at the heart of the business world. Thus, governments generally come to the rescue when they encounter financial crises, providing emergency liquidity and different types of bailout programs. For a variety of factors, the argument for generous bank funding, however, is murky. First, we have the traditional problem of identification: how can we say the course of causality if there is both bank and economic pressure at the same time? Second, if economic activity is affected by bank pressure, under what conditions is this likely to be most harmful? Third, while interventions may save banks, they may not always prevent distressed banks from affecting economic downturn. So, are banks

prevented from damaging economic activity by any intervention, and if so, which ones are they, exactly?
Fourth, how are the intervention costs measured against the benefits

Therefore, knowing the variables in corporate governance that have had a significant effect on risk taking, leading to better/worse financial results, is essential for the banking sector and public policy. In addition, repeated gaps between the governance of banks and other financial firms have been reported. Therefore, the financial crisis points out that improvements to bank governance should take such differences into account in order for bank reforms to be successful.

Bank supervisors require banks to have enough resources to cover losses in the event of a downturn in the economy. For bank supervisors, stress testing has developed an effective method for achieving that objective. Via stress tests, the Implications for the financial positions of individual banks under various macroeconomic conditions are analyzed, considering the exposures and business models of banks. Stress tests have several characteristics (Goldstein and Saprà 2012). First, they are looking forward. Second, they normally put on raised weight extremely adverse circumstances, thereby providing details on tail risks to managers. Third, common Scenarios are applied to banks in order to allow stress tests to provide more consistent supervision across banks norms. Finally, unlike conventional supervisory tests that are normally held confidential, bank stress test results are also publicly released in order to regain trust, restore faith and as a result reduce market volatility.

The liberalization of financial markets in recent years has exposed many people to a number of risks. The effect of interest rate and exchange rate shifts on bank stock returns has piqued the interest of bank executives, regulatory authorities, academic communities, and investors, as multiple banks have failed as a result of adverse interest rate and exchange rate fluctuations.

This study aims to use regression analysis for banking system, the model involves modelling banks' excess return to changing bank specific conditions. It also focuses on the impact of negative scenarios on the economy and financial system, by acknowledging a substantial percentage of interactions and interdependencies among banks, other market participants, and the real economy.

TURKISH CURRENCY CRISIS

Exchange rate

The exchange rate is considered an important determining factor of the relative economic level of a country's health. Fluctuations in exchange rates directly affect a country's overall competitiveness and have the ability to enhance the overall commercial performance of most businesses and in developing countries the stability of payments. Growing inflation, incorrect interest rate strategies, heavy losses of personal wages, growing debt, and inadequate measurement of people's panic actions due to the anticipation of an imminent monetary movement have all contributed to financial crises in recent years in all major regions. Nevertheless, a policy to avoid these economic crises and exchange rate volatility is not implemented yet clearly. Several methods were used in the past, but there is no clear plan in place to avoid this crisis. An exchange rate is basically the rate of one country's currency against another, and it is set by supply and demand market competition. For example, if the demand for US dollars from the Turkish lira increases the supply-demand ratio will result in an increase in the US dollar (USD) in relation to the Turkish Lira (TRY). The value of a country's currency is influenced by a variety of factors. In addition to usual supply and demand dynamics, speculative and manipulative buying and selling decisions, the national currency's interest rate, and inflation are all variables to consider.

Speculation

One of the factors for the dramatic increase in exchange rates in developing markets is thought to be the speculative or deceptive actions of some players in the foreign exchange market. Speculation is a foreign exchange risk that is accompanied by a benefit projection. Destabilizing theory alludes to purchasing foreign currency when the exchange rate rises or is high and will ascend much higher later on.

Interest Rates

National interest rates influence exchange rates as they have a substantial impact on the supply and demand for a country's currency. Rising interest rates offer the national currency a better return than other options. Individuals, buyers, and capital flows are led by higher returns, which raises demand and thus the value of the national currency, causing the exchange currency to depreciate. Reducing national interest rates, on the other hand, normally improves exchange rates. National central banks use monetary policy to regulate bank lending rates by changing their own main interest rate and available bank money reserves in their countries. Inflation is the pace at which prices rise in each country, and it determines the value of the national currency. Turkey's currency continues to devalue due to its comparatively higher inflation rate, which means that the price of Turkish products rises faster than the price of goods and services of other countries. As a result, Turkish customers will find it more appealing to buy dollar products, for example, and that will provide TRY to be able to purchase dollars or dollar imports. As a result, increases in relevant inflation rates will influence exchange rates in the long run, influencing people's purchasing and selling preferences. (Pettinger, 2012).

TURKISH CASE

Turkey is an emerging country that relies on foreign financial sources for capital, electricity, and technology, among other things. As a result, when the exchange rate rises, the expense of money (TRY equivalence) for debts automatically increases. An increase in the exchange rate will result in an unstable economy, as new investment will decline, economic growth will slow, and unemployment will rise. As a result, there is no question that Turkey's unpredictable dollar exchange rate has a negative effect not just on government accounting but also on the average citizen's standard of living. The USD/TRY pair has been on the rise since the early 2000s.

According to financial instruments, a rise in domestic interest rates would cause this currency to appreciate against other foreign currencies. As a result, most economies consider the need to adopt an interest rate strategy in tandem with a steep increase in the exchange rate to be a crucial intervention.

The Turkish lira, supported by large dollar vulnerability amid new developments in the production of a COVID-19 vaccine and US fiscal stimulus. After Turkey's central bank climbed interest rates and vowed to sustain monetary policy tightness while waiting for a permanent decline in inflation. The decision followed the announcement by President Recep Tayyip Erdogan of new economic recovery plan that was focus on price stability.

This year the Turkish lira was the worst performer in emerging markets, hitting a recovery low of 8.6 against the greenback, amid worries about inflationary pressures, the depletion of foreign exchange reserves and geopolitical tensions.⁴

Timeline

In compliance with the standby agreement signed, Turkey's disinflation program began January 2000 with the IMF. As Turkey has observed substantial current account deficits, in recent decades, and with high persistent inflation, it was unavoidable to have a program focused on solving these problems. In the 1990-1994 era, the authorities suppressed though freeing up interest rates, the exchange rate triggered short-term capital inflows. The object of this policy was to fund increased domestic demand

⁴ <https://tradingeconomics.com/turkey/currency>

using foreign capital. Nonetheless a huge current account deficit was created by this process and the country became vulnerable to attacks of speculation. This regime was unsustainable at the beginning of 1994 and the exchange rates could float freely after an attack.

This depreciation in 1994 triggered a surplus in the current account. A tight fiscal policy in 1998, strengthened by the international recession caused by the Asian crisis has created a surplus in the current account through the fall in national earnings. In addition, the ratio of domestic debt to GDP has risen between 1995 until 2000. Annual growth rate of consumer price (CPI) index at the beginning of the standby program was 64.8%. The program was based on concepts set out below:

Via implementing a tight fiscal policy, for an improved gross budget surplus, Income policies, focusing a restraint on wage and rent growth rates, by applying a ceiling of 20 percent, with a strong monetary policy involving the fixation of domestic credit. The targeted value of a basket consisting of \$1 plus 0.77 has been set by the monetary authorities. As the nominal anchor in a crawling peg regime, in which it was determined that the annual growth rate of this basket of currencies is 20 percent.

Intended for the program for the continuation of the peg policy until June 2001, to be preceded by the implementation of the peg policy Expansion of the band system with a view to being a free-floating system at the end of 2001. Interest rates fell from 72.2 percent to 35.1 percent in the first three months of the program. As both interest rates and import prices have been declining, overall prices have been reduced. There was no slowdown in demand, and the fall in inflation rates was slower than expected. The primary stimulator of the large current account deficits was the high level of aggregate demand. This process also caused over lending and a complete credit boom to be a problem.

In fixing domestic credit, the program was successful. During the program, budget deficits were fully funded by domestic borrowing. In order to avoid an increase in aggregate demand and to neutralize the expansionary impact of interest rates and exchange rates, fiscal policy could not, however be efficiently enforced. The net budget deficit increased during the program era, in real terms, approximately 5 percent per month. Economic agents were distrustful of the peg scheme because of high budget deficits accompanied by trade deficits. As the trade deficit rose, the economic agents concluded that the risk of a devaluation had also increased.

Finally, the high trade deficit at the threshold level made the agents conclude that devaluation was imminent, and capital poured out. On November 22, 2000, the first speculative attack occurred. In the aftermath of this the government levied a lump-sum tax on some manufactured goods and services, which was sufficient to minimize the deficit in the budget; indeed, it was not possible for the authorities to escape the impending crisis. After the attack in November 2000, interbank functions Interest rates increased overnight by 873 percent and as a result, in two weeks, the Turkish central bank lost \$5 billion. The peg was defended by high rates of interest and the central bank's Interventions in markets for foreign exchange.

Furthermore, an additional contingency facility of \$7.5 billion was provided by the IMF and this additional fund avoided further speculative attacks. However, on February 19, 2001, the last speculative attack against the Turkish lira was caused by a political crisis. Interbank rates climbed by up to 6,200 percent overnight. In order to protect the peg, the central bank sold \$5.36 billion. This reserve deficit, however, was not Enough for the speculative attack to end. The central bank was no longer able to sustain the pegged currency system on the basis of these changes, and the currency was permitted to float freely on February 21, 2001. In 2002-15, the incidence of poverty more than halved and extreme poverty declined much faster.

Throughout this period, Turkey has developed dramatically, retained robust macroeconomic and fiscal strategy structures, unlocked its doors to international market and finance, synchronized many rules and procedures with the requirements of the European Union (EU) and greatly increased access to government services. Turkey's economy recovered well from 2008-2009 financial crisis.

The response of Turkey to the inflow of approximately 3.6 million Syrian immigrants has been admirable and gives an example for other migrant hosting countries. In recent years, however, changes have been slowing down in many regions, which, combined with economic vulnerabilities, poses a risk of losing some of the gains achieved thus far. Taking into account rising inflation and unemployment, high corporate and monetary area weaknesses, and the inconsistent execution of restorative strategy measures and changes, lead to a large macroeconomic picture more helpless and questionable. Due to continuous geopolitical uncertainties in the subregion, there are also major external headwinds. It is predicted that the effects of the COVID-19 crisis in Turkey would have a significant negative effect, weakening economic and social gains even more.

LITERATURE REVIEW

The recent global economic turmoil has highlighted the importance of stress tests in the evaluation resilience of the financial sector to adverse macroeconomic disturbances. Usually, financial sector supervisors and central banks conduct macroeconomic stress tests to key financial institutions. The scientific community emphasizes the resilience of the banking sector especially after 2008 when the need for greater efficiency of the board became apparent. A part of the bibliography is analyzed briefly below.

S. Kasman, G. Vardar and G. Tunc (2011), uses the OLS and GARCH estimation models, this paper examines the impact of interest rate and foreign exchange rate shifts on Turkish bank stock returns. Thirteen Turkish commercial bank stocks are included in the study, all of which are traded on the Istanbul Stock Exchange (ISE). The closing price of individual bank stocks, the closing price of the bank index, and exchange rates are all available on a regular basis. For the duration starting on July 27, 1999, and interest rates were used which will finish on April 9th, 2009. The findings indicate that shifts in interest rates and currency exchange rates have a negative and important effect on the conditional bank stock return. Furthermore, bank stock return sensitivities are found to be higher for market return than for interest rates and exchange rates, meaning that market return is a key factor in deciding the dynamics of bank stock conditional returns. The results also show that the most significant determinants of conditional bank stock return volatility are interest rate and exchange rate volatility.

Bae, S.C., 1990 revised the interest rate sensitivity of financial company common stock returns. Present, expected, and unanticipated interest rate increases, as well as depository and non-depository firms and three different-maturity interest rate indexes, are all taken into account. Both current and unforeseen interest rate increases have a negative effect, according to the findings. While there are several exceptions, most subsectors of both financial and non-financial firms' stock returns are unaffected by expected interest rate shifts. The results of this analysis are unaffected by the model of interest rate expectations used.

A. Cole, F. Moshirian and Q. Wu (2008), by examining the correlation between banking sector stock returns and potential economic development. Previous research has found that a country's

financial sector influences potential economic development, as well as the stock market index returns. Panel data from 18 developed and 18 emerging markets was analyzed using dynamic panel techniques. The majority of the valuable information in bank stock returns is taken by country-specific and structural characteristics including bank accounting disclosure rules, banking scandals, insider trading compliance, and government ownership of banks, according to this report.

O. Arbaa and E. Varon (2019) select a sample from yahoo finance and investing.com database and include daily stock prices of 29 major European banks, which are the largest banks trading in 9 stock exchanges around Europe. Sample comprise largest and strongest economy of the Europe and those that are indebted and more financially vulnerable such as Greece and Spain. They calculate the daily bank returns based on their closing stock prices from August 1, 2017, to September 24, 2018. The event-window is 11 days, including the event day (August 10, 2018) and a time period of 5 days before and 5 days after the event. To measure the abnormal returns (AR) in the event window (-5, +5) they use the Fama-French five-factor asset pricing model (2015). The data for the five factors modes is market, size, value, profitability and investment. Also, they compute the individual bank returns in excess of the risk-free rate used by Fama and French for the European markets, the U.S. one month T-bill rate. In addition, they add a dummy variable that takes the value of 1 event day and zero if non- event day. If ARs and CARs are negative and statistically significant, they can conclude that the stock prices react negatively to the currency crisis event.

O. Arbaa and E. Varon (2019) conclude that the event affects banks more strongly on the day of the event and 1 day after the event. For Turkish banks, the event increase average abnormal losses three times for time 0 and 1 and as a result contribute to positive abnormal return on day 2. They end up with the following result, the stocks of the overall banking sample react negatively to the crisis in Turkey and indicate that banks recently increased their leverage or experienced a decrease in liquidity or profitability have also suffered higher abnormal losses on the day of the event and a day after the event where the losses in general were the most severe. Banks of Greece show that higher abnormal losses, indicate that the geographical proximity, can be a factor in speculative attacks and/or crisis spillovers. In addition, losses of banks are not necessarily proportionate to the size of their exposures, except for Turkish banks, which have been the most vulnerable. Spanish and Italian banks, which carry

the largest amount of loans extended to Turkey do not seem to show the highest abnormal losses among the European banks.

A. Psaila et al (2019) analyze the impact of non-performing loans on listed commercial bank profitability in Europe, specifically their Return on Assets (ROA) in the euro-Mediterranean area. Their aim is to answer the question whether an increase in NPLs result to a positive or negative impact on the concerned banks. The authors concentrate on the effect of non-performing loans on profitability for listed commercial banks in the Euro-Mediterranean region. Likewise, another goal of this examination is to distinguish any examples in profit and non-performing loan figures within the period from 2013 to 2017, to discover the importance in relationship terms between the reliant variable Return on Assets (ROA) and the independent factor (NPLs) and to find the importance in variety of the control factors Solvency Ratio (SLVT) and Liquidity Ratio (LQDT) with ROA and NPLs and last to make a rundown to suggest a few restorative activities through basic contentions. Authors use panel data for the period between (2013-2017) for 35 commercial banks. Data was collected from Thomas Reatars Eikon. For the analyze they use descriptive statistics and four regression models. The main result from this article is that there is a negative impact of NPLs on ROA. These findings have important implications for the bank's financial stability in the Euro-Mediterranean region. Besides, an extra change in ROA because of the adverse consequence of NPLs shifts as indicated by each bank panel.

Furthermore, the control variable LQDT was deemed insufficient as a control variable for listed commercial banks in the Euro-Mediterranean region because it was statistically insignificant in all regression models run. In this case, the fitting control variable was taken to be the equity-to-assets ratio, which represents the SLVT. The negative relationship between NPLs and ROA suggests that the degree of profitability of a listed commercial bank in the Euro-Mediterranean region is determined by the credit risk it accepts. The main result from this study is very relevant with this topic as Floyd bet that Turkey borrowers will struggle to pay foreign-currency debt because of the side in the lira, ultimately contributing to an increase in NPLS at European lender. (Hedge fund veteran shorts eurozone debt on turkey fallout- Bloomberg 2020). European banks have most exposure to Turkey due to old links. According to these study that will lead to a negative impact to ROA among European banks.

S. Sengula and E. Yilmazb (2019) study, focused on assessing the fundamental risk in Turkey's financial area by using two significant measures that have been proposed in the existing literature as

conditional value at risk and marginal expected shortfall. They utilize six Turkish banks, which are listed, on the Borsa Istanbul (BIST) within the period of 2000-2016 to register the commitment of banking area to systemic risk, the marginal expected shortfall and change in conditional value at risk measures are assessed for those six banks. To compute both measures, the multivariate GARCH models and DCC models are utilized. The starter aftereffects of this examination show that although the variables give various rankings to the systemic risk contributions, they wind up being subjectively basically the same in clarifying the cross-sectional contrasts in systemic risk contributions. Furthermore, both systemic risk measures are dissected to decide the connections between certain factors related with bank attributes and banks' systemic risk contributions, by means of basic board information relapse strategies as in A. Psaila et al (2019). Thirdly, the consequences of this examination could not track down a comfy connection between systemic risk contributions and leverage ratio in the cross-sectional measurement, rising influence proportions lead to an expanding systemic risk contribution in the long haul. Furthermore, results show that there is a frail connection between the size of a bank and its systemic risk contributions. Information utilized in this examination is restricted to the financial exchange data to figure the systemic risk measures.

P. Disyatat (2004), in this paper in contrast to previous related study's, authors are directly modelling the banking sector taking account the role of bank balance sheet. By this approach, they are able to discuss how differences in the quality and health of the banking system determine the real effect of depreciation. The model they use focused on banking lending channel. Main result indicates that if domestic banks have large amount of unhedged foreign currency debt, then a devaluation will further weaken their balance sheet and bring a step closer to a recession.

A devaluation could worsen the fragility and vulnerability of the domestic financial sector instead of helping to improve the economic situation through monetary easing. This study shows that the efficiency of banks in each country is one of the important factors that can account for the fact that, in the aftermath of a currency crisis, developing countries appear to undergo more severe output contractions than more mature economies. For instance, in terms of high net worth and low foreign currency exposure, countries with a healthy balance sheet in the banking sector are far less likely to experience a recession following an unforeseen depreciation. This study highlights two possible factors that may lead to isolating the real economy from any negative effects of depreciation. First, well-

capitalized banks are best equipped to cope with such a shock because their equity can be used to cushion the spike in the debt burden. Secondly, a prudent banking sector that does not have significant unhedged foreign currency denominated liabilities would be more resilient to the currency crisis since its exposure to exchange rate fluctuations is more resilient.

According to author, a sharp contraction in production may be the result of a sudden deterioration in the net worth of bank suggests a possible response to the crisis. A quick step to recapitalize the bank to improve their balance sheet will allow them to mediate funds more efficiently as investors regain their confidence in repayment. However, the magnitude of a potential damage from unhedged short-term borrowing abroad highlights the need for precautionary measures. This model emphasizes the importance of effective regulation and supervision of financial markets, limiting the speculative currency positions of the banks that form the core of the domestic payment system, and can therefore be very compact in that they believe they enjoy a public guarantee.

Yesin, Pinar (2013) uses a new set of foreign currency loan data from 17 countries for 2007 until 2011 all data are collected from the National Bank of Switzerland and is based on the method proposed by Ranciere et al (2010) for quantification of systemic risk. Additionally, the author mentions that systemic risk is significant in the non-European region, while it is relatively low in the euro region. Loans in other foreign currencies, on the other hand, are the underlying source of high systemic risk. Furthermore, during the study era, systemic risk has a high level of consistency and low variability. The authors also point out that European banks have historically kept more foreign currency assets than liabilities, implying that they are more risk averse. In the non-euro region, loans to CHF contribute significantly more to systemic risk because of their awareness of the credit risk raised by the exchange rate they face.

In addition, systemic risk indicates excessive determination and low variability within the period of the sample. This article aims to measure the systemic risk resulting from foreign currency loans to domestic nonbanks within the European financial industry. To do so, the view of the common market shock is respected, where banks could collapse together as a result of their exposure to unsettled non-banks that lent in foreign currency but had no stable income in that currency. In this situation, the shock of the common market will be a sudden shift in the exchange rate that would cause default. For example, households with foreign mortgage. To compute a proportion of systemic risk for European

nations' financial areas. Systemic risk is determined as the net unhedged foreign currency liabilities as a percentage of total assets and can be portrayed, as a novel currency mismatch index. Subsequently, author figure the net foreign currency liabilities as a share of total assets however barring the "unsafe" foreign currency asset.

Brown, Martin et al (2012) established their paper by survey data from 193 banks in 20 regions. Authors offer the first bank-level analysis of the relationship between bank ownership, bank funding and foreign currency (FX) lending across emerging Europe. The BEPS which was conducted in 2005 and covered banks in 20 transition countries, is the primary data source. The BEPS questionnaire collects comprehensive information on each bank's loan and deposit structure in 2001 and 2004, as well as its risk management practices, creditor rights evaluation, and banking regulations. They cross-reference their BEPS data with financial situation data from the Bureau van Dijk BankScope database, as well as country-level measures of interest rate differentials in international versus local monetary resources, real exchange rate volatility, inflation volatility, and exchange rate regime sort.

This study finds that FX loaning by all banks is highly influenced by the macroeconomic situation, regardless of their ownership structure. Due to easier access to wholesale financing in foreign currencies, they see no proof of foreign banks' pushing 'FX loans indiscriminately. While foreign banks borrow to business clients more in FX, they do not do so to retail customers. They also find that the banks that are acquired does not increase FX lending after a take-over by a foreign bank. The most important result is that there is not much evidence that foreign banks have made a larger contribution to robustness than domestic banks. Even Though foreign banks borrow a higher amount to integrate customers into FX, they find no differences between domestic and foreign banks in the currency of home loans - one of the main factors in the rapid growth of foreign currency lending. International banks did not grow foreign currency lending faster than domestic banks over time, and the rate of foreign currency lending did not increase following a foreign investor's takeover of a domestic bank. Also, there is no strong evidence that lending in a foreign currency is related to wholesale bank financing or that foreign currency lending is correlated within multinational banking groups during the reporting period.

Beer et al. (2010) looks at survey data from over 2,500 Austrian homes and discover that households with more capital, higher income, and quality education are more likely to have CHF

mortgages rather than EUR mortgages. Thirteen percent of Austrian households record foreign currency denominated housing loans, mainly in Swiss francs. Authors examine a comprehensive financial resources study of 2556 Austrian households that provide a profile of household attitudes and characteristics. Both univariate experiments and multivariate multinomial logit models are used. Information from the survey shows that risk seeking, wealthy, and married households are more likely to take out a foreign currency housing loan. In particular, financially literate, or high-income households are more likely to consider a housing loan. These results partly mitigate policy concerns about the possibility of household default on foreign-currency mortgage loans or retirement protection for households. The aim of the survey was to gather microdata on the financial resources, savings, and debt of private households. The survey consists of questions on the sociodemographic characteristics of households, types, amounts and asset sources, debt holdings; sources of knowledge about the stock market; and attitudes towards and awareness of financial market issues. The survey was conducted through a mixture of face-to face and written interviews. The household head or the household member with the most detailed knowledge of the finances of the household was the interview partner. Analyzable data sets from 2556 households were collected, leading to a response rate of 54.9 percent for Vienna (1026 out of 1869 households) and 63.5 percent for the remaining eight federal states (1530 out of 2408 households). They use a multinomial logit model.

Despite the noteworthy role of financial advisors, they find that survey data indicate that in organizing the Swiss franc loans, their survey data say that danger seeking, wealthy and married households are more likely to take a foreign currency housing loan. Financially educated, households with high incomes are more likely to obtain a mortgage loan in general. Therefore, these results could partly mitigate possible policy concerns regarding household credit risk.

EMPIRICAL METHODOLOGY

This section will cover a variety of topics related to the methods that this research study is based on, such as the data collection process, the exclusion and inclusion criteria and the research methodology. The broad aim of this study is to examine the effect of the presence of banks in Turkey on the excess returns of banks. To examine this effect, I focus on the closing price of each bank and the bank stock market index between 1st of January 2020 and 11th of November of 2020. The research project will require a data collection which will be acquired from SNL financial, Global Financial Database and investing.com. Google Scholar can also be used since the website contains information from a variety of fields (including finance) and only includes scholarly publications. Additional information (especially from annual financial reports) on issues such as bank size (total assets), dividend payout policy, liquid assets, loans, and history can be obtained by visiting the company websites of the involved banks. Data for all independent variables are collected on a yearly basis for the period of 2020.

Methodology is a broad research approach that specifies how research should be carried out. It requires a set of beliefs and philosophical assumptions that form how the research problems are understood and how research methods are chosen. One method of research methodology construction is based on Saunders et al (2016). The concept of "research onion" (Figure 1). The research onion describes the key layers or stages that must be completed in order to formulate an effective technique in a very exhausting manner. The research onion consists of six main layers as can be observed in the below figure 1. The research onion is a method that can be used to coordinate research and improve research design by working through the layers of the onion one layer at a time.

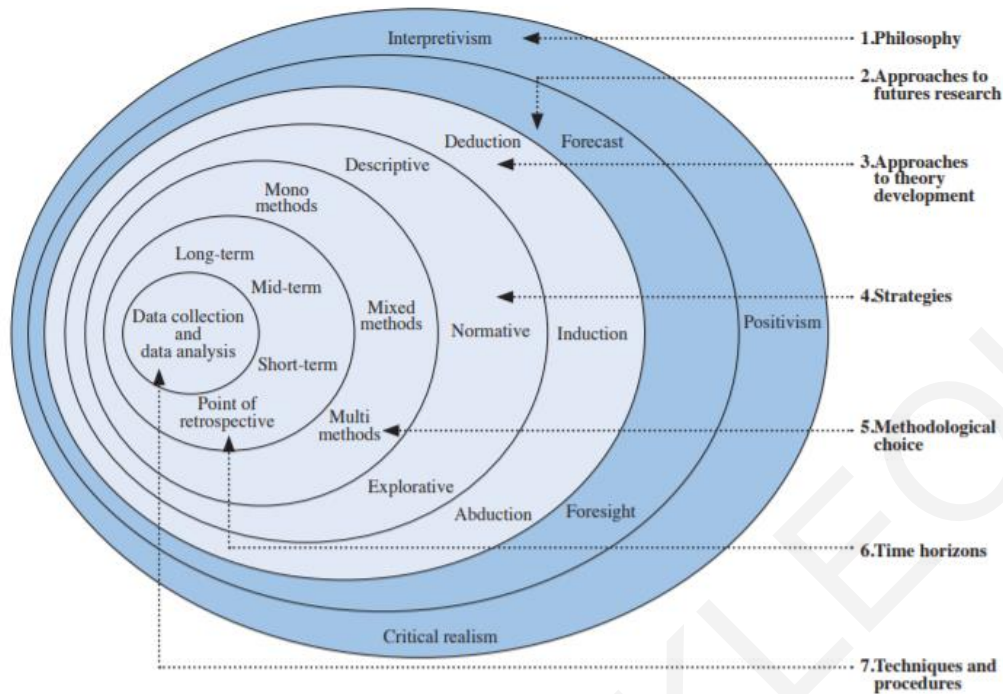


Figure 1 Research onion for futures studies

Source: author following Saunders et al. (2016)

Data Collection

The sample consist of 553 publicly listed banks from a variety of different countries. The following variables are used. For the dependent variable, historical close price of each bank and the banks' index are collected on daily basis for 1st of January 2020 and 11th of November 2020. For the control variables, non-performing loans, dividend payout ratio, interest income, interest expense, loans liquid assets and 10-year bond yield are all collected in a yearly basis for 2020. In addition, for the variable Turkeypresence banks with branches in Turkey are collected. Data required for this analysis are all collected from SNL financial, Global financial database and investing.com. The identification code of each Banks along with, ticker symbol and country code will be found also from SNL-financial.

A regression analysis will be made for forecasting the effect of each independent variable on the excess return of banks. Indeed, a comparison will be made between countries to have a comprehensive picture of which bank faces change in excess return during a period with uncertainty in Turkey's

economy. This study focuses on the excess return of banks across the world concerning NPLs, different microeconomic factors and bank-specific factors. The use of the excess return of each bank instead of the actual returns will remove the market index return of each country. Therefore, a positive excess return will show that this bank is relatively outperformed in its sector, while a negative excess return occurs when a bank underperforms in its sector.

Inclusion and exclusion criteria

Exclusion Criteria

Once the search in the selected database is completed, the findings will be filtered to exclude irrelevant publications, such as those that do not meet the appropriate quality criteria, studies that are not recent, and studies that do not fall within the time frame associated with the research issue to ensure that the credibility of the selected publications is maintained.

Inclusion Criteria

The publications that will be included are the ones whose title or abstract are relevant to this empirical study. Additionally, only publications whose focus is on bank stock returns, foreign exchange depreciation, banks' exposure to Turkey's economy and Turkish Lira, performance NPLs, currency crisis and spillovers into foreign banks will be included.

Data Analysis

This study focuses on finding the association between Bank performance and currency crisis in Turkey's economy by forecasting excess returns. Despite the macroeconomic variables that are extensively used in previous literature, this research extends the previous literature by examining a broad set of variables that measure the exposure of banks to Turkey, such as the presence of each bank to Turkey. Additionally, most of the studies focus on the US, this study offers new empirical evidence of worldwide Countries including Europe for the periods January and November. This period was selected since in November 2020 presidential election take place and affects Turkey's economy.

DEPENDENT VARIABLES

The dependent variable is the change in excess return of banks that is commonly used in the existing literature and is analytically described below.

Excess Returns

Dependent variable is calculated based on the following equation:

$$Excess\ Return = \frac{Closing_Price_Bank_t - Closing_Price_Bank_{t-1}}{Closing_Price_Bank_{t-1}} - \frac{Closing_Price_Index_t - Closing_Price_Index_{t-1}}{Closing_Price_Index_{t-1}}$$

Where **t-1** is 1st of January 2020 and **t** is 11th of November 2020.

Measures, the change in closing price of the *i*th stock at time *t* compared to the closing price of *i*th stock at time *t-1* and afterwards, subtract the closing price of the banks' index in each country for the same period. By this method, the market index return will be removed from the actual return of each bank.

The price of a stock reveals a company's current or market value. As a result, the price is the price at which the stock trades or the price agreed upon by a buyer and a seller. The stock's price would rise if there are more buyers than sellers. The price will drop if there are more sellers than buyers. Given that investors are rational if the performance of the bank and the whole economy doing well then stock price rises.

INDEPENDENT VARIABLES

Non-Performing loans

A nonperforming loan (NPL) is a loan on which the borrower has defaulted because they have failed to make scheduled payments for a certain period of time. Although the precise components of nonperforming status can vary depending on the terms of the loan, "no payment" is typically defined

as no payments of principal or interest. Depending on the industry, the specified timeframe varies as well. When a loan is categorized as a nonperforming loan (NPL), the chances of getting repayments are greatly reduced.

In addition, in case a bank is unable to recover non-performing loans, it has two options: repossess collateralized assets or sell the loans to collection agencies. When a bank's balance sheet contains too many non-performing loans, it faces cash flow issues because its credit business is no longer profitable.

Foreign currency loans are a big risk for many banks. The depreciation of the Turkish lira has a negative impact on businesses in the country that have dollar-denominated loans. However, the turbulence in the lira has a negative impact on sentiment, as Turkish people regard the exchange rate as a barometer of the economy's health. Individuals and firm that have loan denominated to other currency become unable to repay their loan and from this perspective, banks are very vulnerable to Turkish lira.

Figure 2 below shows the percentage of non-performing to total loans for eight listed banks in Turkey. Sekerbank T.A.S. is the most exposed bank to non-performing loans with 10.730% non-performing loans while GSD Holding A.S. the less exposed bank with 2.396% of non-performing loans.

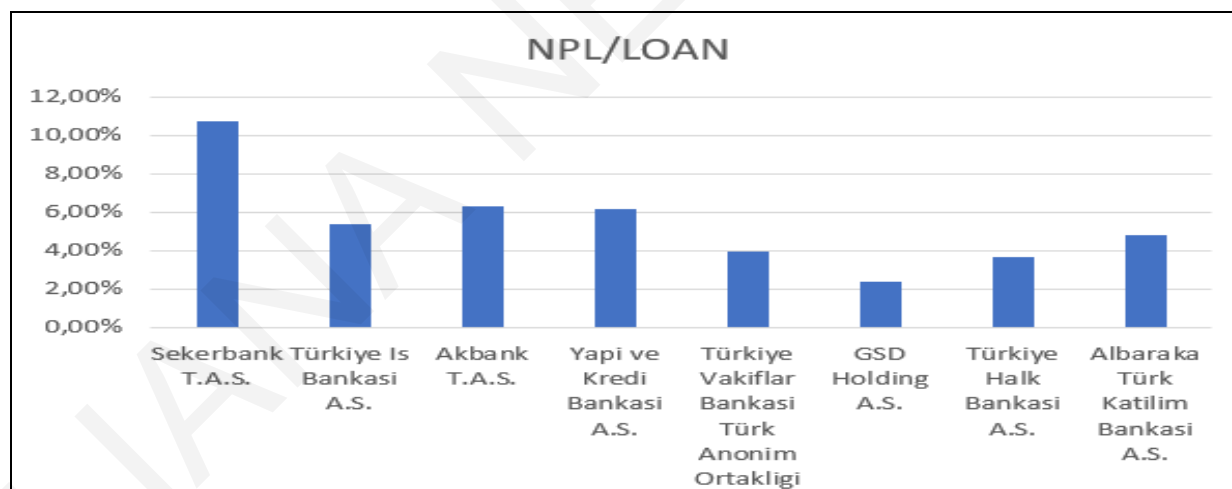


Figure 2 Turkey Listed Banks

Interest income

Interest and dividends received on investment securities, as well as any deferred loan payments, were all amortized into income during the era. This variable is calculated in compliance with FAS 91 for

US-GAAP businesses.⁵ Banks create profit by earn more money than they spend on expenses, just like any other company. The fees it charges for its services and the interest it receives on its assets account for the majority of a bank's profit. The interest paid on its liabilities is its largest expense.

Bank's major assets are its loans to individuals, companies, and other entities, as well as the securities it owns, while its major liabilities are its deposits and the money it borrows from other banks or sells in the money market. As a result, an increase in interest income of a bank is expected to increase its share value.

Dividend - Payout ratio

Dividends declared as a percentage of earnings per share during the period. The estimate is only available for annual periods for companies outside of SNL's North American coverage, and it uses dividends attributable to fiscal year rather than reported dividends. In the banking sector, a high payout ratio indicates that investors can use this variable to forecast future stock returns and, as a result, plan their investment strategies in this sector. Positive and substantial payout ratios also suggest that investors are more concerned about bank dividend payouts when investing in this sector, as this ratio reflects the number of dividends paid and the amount of earnings retained by the company. On the other side a higher dividend payout policy means that a bank does not reinvest an adequate percentage of profit for future growth.

Efficiency ratio

Efficiency ratios include Noninterest expense before foreclosed property expense, amortization of intangibles, and goodwill impairments as a percent of net interest income (fully taxable equivalent, if available) and noninterest revenues, excluding only gains from securities transactions and nonrecurring items.⁶ For European banks, expenses include foreclosed property and amortization of intangibles and income includes security transactions. Efficiency ratios equate a company's assets to its revenue or benefit results, informing investors about the company's potential to maximize profits for its owners and shareholders. An efficiency ratio is a measure that indicates how efficient a bank is.

⁵ SNL - financial definition

⁶ SNL - financials definition

Divide a bank's expenditures by its net profits to get the efficiency ratio. By subtracting a bank's loan loss allowance from its operating profits, net revenue is determined. Higher efficiency ratios are preferable because they mean that a bank spends less money to produce each dollar of revenue.

Loans to Assets

Declared as Loans and finance leases, net of unearned discount and gross of loss reserves, as a percent of assets and loan-loss reserves. Is a proxy for leverage. Banks with a lower portfolio of securities have higher amount of loans. Because of the rise in credit spreads that occurred during the crisis, we would expect banks that held less loans to perform worse than banks that held more credit-risky securities (Beltratti and Stulz, 2012). The cumulative loans outstanding as a percentage of total assets is calculated using the loans to assets ratio. The higher this ratio is, the more a bank's loan book is depleted, and its liquidity is poor. The higher the percentage, the more vulnerable a bank is to default.

Liquid Assets to Assets

This variable indicates the liquid assets of each bank as a percentage of total assets. If an asset can be easily sold or converted into cash without losing value, it is said to be liquid. Cash is the most liquid asset because it does not need any extra conversion measures, it is already cash. You may use it to pay for a product or service right away, as well as to pay off any outstanding debts. Savings, and money market accounts are the most popular places to hold cash. The higher the percentage, the greater the business's safety margin for meeting current liabilities. Creditors and lenders often use the liquidity ratio when determining whether or not to extend credit to a company.

Interest expense

For interest expense on an incurred basis, interest on debt and other borrowings, amortization of discount or premiums, as well as interest on capital leases, are included. The fees charged to the bank by another bank, creditor, and other lenders because of fund borrowing for a period of time were referred to as interest expenses on the income statement. Bonds, loans, convertible debt, and credit charges were among the types of borrowing. As mentioned above bank create profit if income is greater

than expenses from this perspective an increase of interest expense with all other variables constant is expected to decrease the value of the bank.

Control Variable

Interest rate Spread

Is calculated as the difference between a 10Y German bond yield and 10Y bond yield of the country that each bank operates. Generally, shows the additional risk over German risk-free rate. As all data collected are denominated on reported currency, I use an independent variable to capture this difference. The difference between each country's risk-free rate and the German risk free.

Dummy Variable

Subsidiaries in Turkey

This parameter takes the value of one if the bank has subsidiaries in Turkey and zero otherwise and will show as the difference of share price if a bank has subsidiaries in Turkey in contrast with a bank that has no subsidiaries in Turkey. The economic crisis in Turkey poses a threat to banks with operation there. Banks with branches in Turkey are also likely to lend to the Turkish lira, effectively increasing the leverage of each bank. After the devaluation of Turkish domestic currencies, borrowers will not be able to repay their loans. As a result, if a bank goes bankrupt, the effects will spread and to other financial institutions.

Table 1.1 shows the listed banks that have subsidiaries in Turkey and are included in the sample. For those banks, the variable TurkeyPresence takes the value of one.

HSBC Holdings plc	Powszechna Kasa Oszczednosc Bank Polski Spólka Akcyjna
Banco Bilbao Vizcaya Argentaria, S.A.	Türkiye Vakiflar Bankasi Türk Anonim Ortakligi
BNP Paribas SA	GSD Holding A.S.
The National Commercial Bank	Türkiye Halk Bankasi A.S.
Citigroup Inc.	Rothschild & Co SCA
Bank Hapoalim B.M.	Kuwait Finance House K.S.C.P.
Mitsubishi UFJ Financial Group, Inc.	Industrial & Commercial Bank of China Ltd.
Sekerbank T.A.S.	Albaraka Türk Katilim Bankasi A.S.
Türkiye Is Bankasi A.S.	Habib Bank Limited
Aareal Bank AG	Qatar National Bank (Q.P.S.C.)
Akbank T.A.S.	The Commercial Bank (P.S.Q.C.)
Yapi ve Kredi Bankasi A.S.	Emirates NBD Bank PJSC

Table 1 1 Banks with branches in Turkey

Country

For each country that the bank operates in, this variable takes a value from 1-15. The control group for this dummy variable is group 15. Group 15 is omitted and refers to the US. Country of operation for each bank has a crucial role as stock returns are strongly affected by domestic regulations. Banks that operate in EU have many common characteristics in terms of the regulation. All are under ECB supervision. For instance, if a bank operates in competitive banking industry in countries with free-market access to foreign banks or new domestic banks this may affect the stock return. In addition, economic stability, political situation, and huge number of macroeconomic factors of the country of operations also may affect significantly stock returns.

DESCRIPTIVE STATISTIC

In this section I present the descriptive statistics of the dependent and independent variables that are used in the empirical analysis. Table 1.2 demonstrates the mean, standard deviation, minimum and maximum values for the dependent, independent and control variables for 553 Banks within 2020.

More specifically, panel A shows descriptive statistics for the Dependent Variable. Banks excess returns fluctuate between -0.5334 and 1.2692 as some bank's prices change more than 100% between January of 2020 and November 2020. That means that banks with the highest stock price increase change by 126.187% while banks with the lowest price decline change by 53.334%. The dependent variable has a mean value of 0.0171, which indicates that the sample banks on average have excess returns equal to 1.7062%. Standard deviation for banks' excess returns is 0.1539658.

To continue, Panel B shows the independent variables, non-performing loans, interest income, dividend payout ratio, efficiency ratio, loans, liquid assets, and interest expense. The Non-Performing Loans which are measured by the total amount of non-performing loans divided by the total loan has a mean value of 0.9833%. This implies that, the sample banks on average have 0.9833% of total loans as non-performing loans. Non-performing loans vary between 0 and 10.7302% and a standard deviation of 1.0708%. Since an increase in NPLs has been shown to have a negative effect on the banking sector (A.Psaila et al, 2019), knowing the determinants of NPLs is critical to ensuring the overall economy's productivity and soundness.

Moreover, interest income which is measured as a percentage to average assets has a mean value of 3.6637% and a standard deviation of 0.5676%. A higher ratio indicates that the bank is earning a high interest rate or that the proportion of interest-earning assets (loans) to total assets is high. Interest income varies between 0.96% and 6.46%.

Dividend payout ratio has a mean value of 31.539% this means on average banks are returning to shareholders 31.539% of earnings. The minimum percentage of the dividend payout ratio is 0 and the maximum is 382.7586%. TFS Financial Corporation returns to its shareholders 382.7586% of earnings as a dividend. A dividend payout ratio over 100% implies that a bank is paying out more than its earnings, which in some view is an unsustainable practice but as a fact the dividend payout ratio is a statistic that considers previous years also. This can happen if companies' earnings were lower the previous year and their expected earnings for the following year(s) are substantially higher. Also, free cash flow is better measured than earnings, to gauge a bank's capacity to pay.

In Addition, efficiency ratio has a mean value of 60.54% with a standard deviation of 11.3538%. This indicates that on average bank operating expenses are 60.54% of operating income. Higher efficiency ratio is considered optimal. Lower efficiency ratio suggests banks' expenses are increasing or its revenues are decreasing. Efficiency ratio for sample banks fluctuates between 24.73% to 92.13%.

The loans to assets ratio measure the total loans outstanding as a percentage of total assets and is considered as a credit risk ratio, with a mean of 67.48% and a limit of 92.283%. The higher the ratio, the riskier a bank may be to defaults. The higher this ratio implies a bank is loaned up and its liquidity is poor. The ratio of liquid assets to total assets indicates how liquid the banks' total assets are. Since the rest of the assets are loans and advances, other assets and fixed assets, which are usually high, do not display an image of more than half of the total assets being liquid. The banks in our sample have an average of 24.6682% liquid assets to total assets with a minimum 2.03% and maximum 69.83%. Accordingly, interest expense as a percentage of average assets has a mean of 0.5159%, standard deviation 0.2643% and varies between 0.03% and 1.7%.

Panel C, shows the control variable, spread. This variable is used to diminish the effect of outliers. Since data are reported in different currencies, a control variable is necessary to be used. Spread is calculated as the difference between 10-year government bond yield for each country with Germany 10-year government bond yield. This variable will count additional risk over German risk-free. Spread

mean value is 1.6999% with a minimum value of 0 as German banks included in the sample and a maximum of 13.08%.

Last, Panel D represents categorical variables, the categorical variables that are included in the dataset are Turkey presence and country. Turkey presence is a dummy variable that takes the value of 1 if the bank has branches in Turkey and zero otherwise. Only 24 banks from the sample have branches to Turkey (Table1.3). The mean of this variable is 4.3399% and indicates the proportion of banks that has branches in Turkey. The spread of the distribution of this dummy variable is counted through standard deviation and is 20.39%.

The second categorical variable is the Country. The sample includes fifteen different geographic locations and as a result, for country variables fifteen groups are created. The mean 14.77396 indicates that in my sample I have more US banks' data.

Variables	Mean	Standard Deviation	Min	Max
Panel A: Dependent Variable				
Excess Bank Stock Return %	.0170617	.1539658	-.533603	1.269187
Panel B: Independent Variable				
Non Performing Loans/Loans %	.0098328	.0107078	0	.1073018
Interest Income to Average Assets %	.0366367	.0056763	.0096	.0646
Dividend Payout Ratio %	.31539	.3280501	0	3.827586
Efficiency ratio %	.605452	.1135379	.2473949	.9213946
Loans to Assets %	.6748555	.1272687	.0886992	.9228385
Liquid Assets to Assets %	.2466818	.1149192	.0202629	.6983419
Interest Expense to Average Assets %	.0051595	.0026431	.0003	.017
Panel C: Control Variables				
Spread %	.0169994	.0148227	0	.13081
Panel D: Categorical Variables				
Turkey Presence	.0433996	.2039395	0	1
Country	14.77396	1.41341	1	15

Table 1 2 Descriptive statistic All countries

Table 1.3 presents the number of banks that have branches in Turkey along with the total number of banks. The first column of the table shows all values for country dummy variables from 1-15. From this table is obvious that the majority of the dataset is contracted with US banks. This is a limitation for this study as datasets consist disproportionately of US banks in relation to other geographies. On the other side, the US is huge geography with a strong listed banking sector and as a result, has a larger number of listed banks in relation to other countries. In addition, majority of countries includes only banks that takes the value 1 - control group for the dummy variable TurkeyPresence and indicate banks that have branches in Turkey.

ENCODED	COUNTRY	TURKEY PRESENCE		TOTAL
		0	1	
1	AE	0	1	1
2	CN	0	1	1
3	DE	0	1	1
4	ES	0	1	1
5	FR	0	2	2
6	GB	0	1	1
7	IL	0	1	1
8	JP	0	1	1
9	KW	0	1	1
10	PK	0	1	1
11	PL	0	1	1
12	QA	0	2	2
13	SA	0	1	1
14	TR	0	8	8
15	US	529	1	530
		529	24	553

Table 1 3 Frequency of each group for Country and Turkey Presence variable

VARIANCE INFLATION FACTOR (VIF)

In regression analysis, there are some assumptions about the model that should hold. If one or more assumptions are violated, the model becomes unreliable and is no longer suitable for estimating population parameters. Table 1.4 below presents VIF test for multicollinearity. When two or more independent variables in a regression model are correlated, multicollinearity occurs. A small amount of multicollinearity can trigger a significant problem, but when it is moderate or extreme, it becomes a problem that must be addressed. Values of VIF exceeding 10 are often regarded as indicating multicollinearity. (Habshah Midi, S.K. Sarkar & Sohel Rana 2010). Table 1.3 shows VIF mean value 3.21 which is lower than the threshold of 10 that is not considered a problem. Furthermore, individually, each variable has a VIF lower than 10 which indicates that the multicollinearity issue is not present in this sample.

Variable	VIF	1/VIF
Turkey Presense	7,62	0,131168
Loans to Assets %	5,04	0,198584
Country	4,54	0,220144
Liquid Assets to Assets %	4,47	0,223708
Spread %	3,68	0,271913
Interest Income to Average Assets %	1,58	0,631069
Non Performing Loans/Loans %	1,58	0,632954
Interest Expense to Average Assets %	1,33	0,749395
Efficiency ratio %	1,16	0,860708
Dividend Payout Ratio %	1,1	0,907419
Mean VIF	3,21	

Table 1.4 VIF - Variance Inflation Factor

CORRELATION MATRIX

Table 1.4 shows correlation coefficients between the independent variables. For the highly significant level of 0.05%, loans to assets significantly correlated with the rest of the independent variables. In addition, the correlation between non-performing loans and dummy variable Turkey

presence are positive 0.4857 and significant, indicating that a bank that has branches in Turkey is positively correlated with non-performing loans, which means that a bank with branches in Turkey have more non-performing loans. In addition, the dividend payout ratio is negatively correlated with loans to assets variable. That means that banks which pays more their shareholders have less loans to assets available (-0.1068). Lastly, our findings indicate that interest income to average assets is positively related to interest expenses to average assets (0.3335).

	NPLLOAN	INTINC	DIV	EFF	LOANS	LIQUID	INT
NPLLOAN	1.0000						
INTINC	0.0453	1.0000					
DIV	0.0238	-0.2599*	1.0000				
EFF	-0.0478	-0.0788	0.0004	1.0000			
LOANS	-0.1612*	0.5254*	-0.1068*	-0.0657	1.0000		
LIQUID	0.0832	-0.4130*	0.0651	0.1822*	-0.8584*	1.0000	
INT	0.0217	0.3350*	-0.0122	-0.0441	0.4233*	-0.4603*	1.0000
TurkeyPres~e	0.4857*	-0.0178	-0.0438	-0.2461*	-0.2383*	0.1035*	0.0080
Spread	0.5507*	-0.0009	-0.0777	-0.2286*	-0.1243*	-0.0019	0.0021
Country	-0.2343*	0.0010	0.0039	0.1411*	0.1845*	-0.0974*	-0.0025
	Turkey~e	Spread	Country				
TurkeyPres~e	1.0000						
Spread	0.6307*	1.0000					
Country	-0.7515*	-0.1155*	1.0000				

Table 1 5 Correlation Matrix

SCATTER PLOTS

Figure 3 presents a scatterplot for non-performing loans to total loans variable and the percentage change of banks excess returns. The data show a slightly downhill trend by moving from the left to the right side. This implies a negative relationship between non-performing loans and bank excess stock return. As the non-performing loans increase, bank excess returns values tend to decrease. This trend follows our expectations as a bank with more non-performing loans is expected to have lower excess returns.

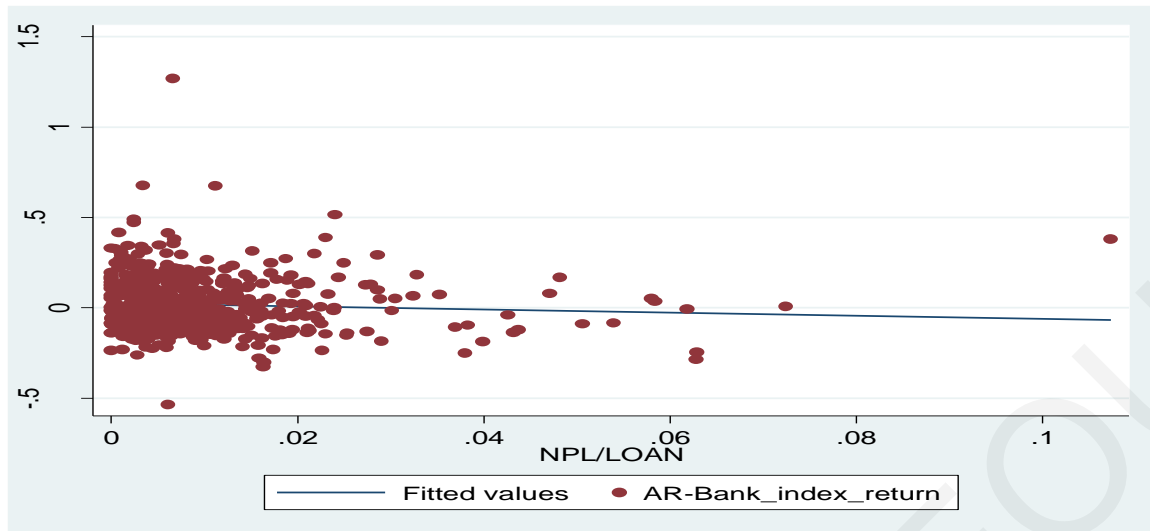


Figure 3 Scatter plot – NPLLOAN vs Er

Figure 4 presents a scatterplot for interest income to average assets variable and the percentage change in excess banks stock returns. The data show a marginally uphill trend by moving from the left to the right side. This implies a positive relationship between interest income and bank excess return. As the interest income increase moves to the right side of the figure, bank stock returns values tend to increase move to the upside in the below graph. The upward sloping is in accordance with correlation matrix results but is not statistically significant. Values for variables for the banks in the sample as observed are center-oriented.

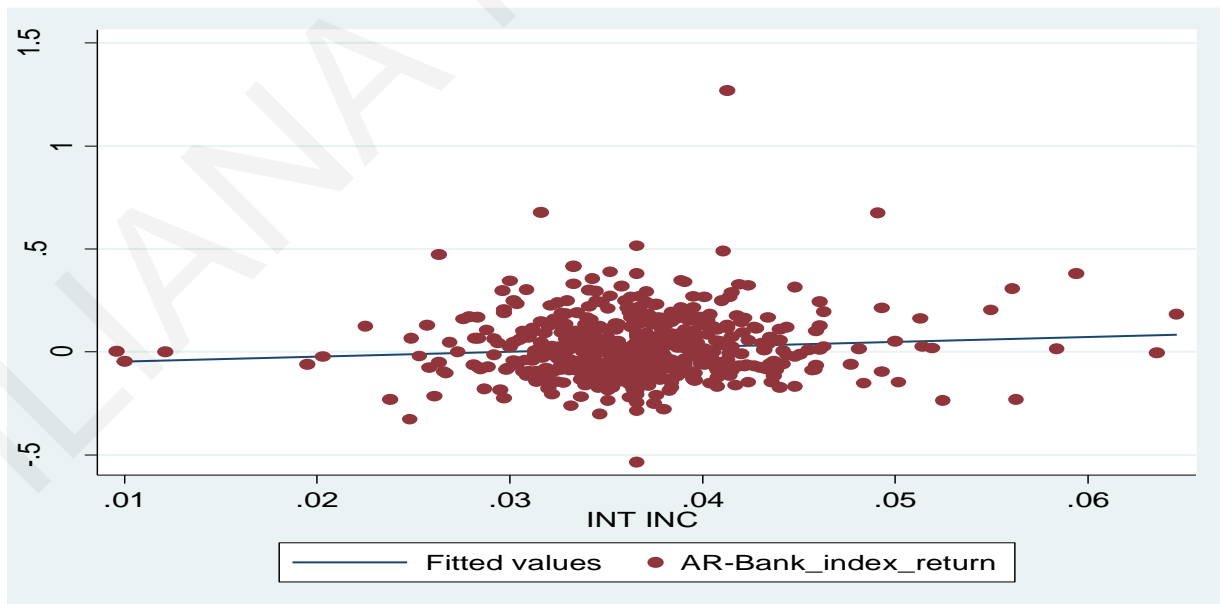


Figure 4 Scatter plot – INT INC vs Er

Figure 5 shows a scatterplot for dividend payout ratio and banks excess returns. The data indicate a downhill pattern as you move from left to right, this indicates a negative relationship between dividend payout ratio and banks' excess stock returns. As the dividend payout ratio values increase the bank stock returns values tend to decrease. The negative relationship is in accordance with correlation matrix results and is statistically significant. In addition, the negative slope in this case is clearer.

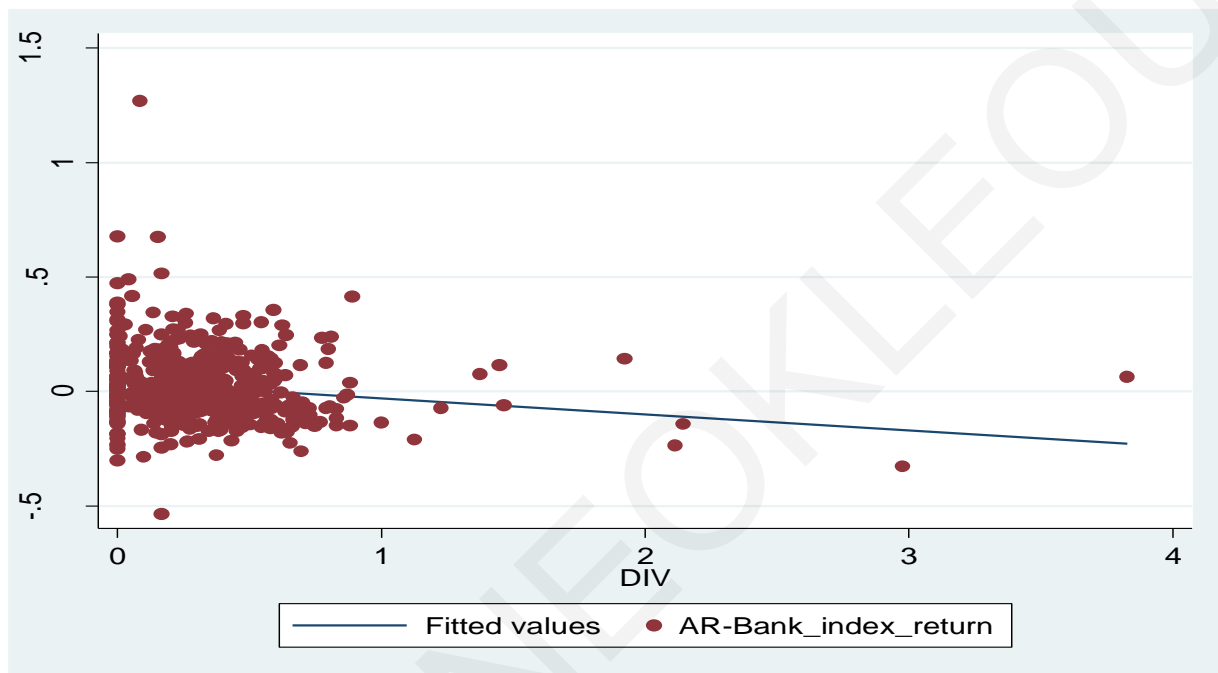


Figure 5 Scatter plot -DIV vs Er

Figure 6 shows a scatterplot for loans to assets and banks stock returns percentage change. The data indicate a slightly downward trend as you move from left to right, this indicates a negative relationship between loans to asset and bank excess returns. As the loans to asset ratio values increase the bank excess returns values tend to decrease. The negative relationship is in accordance with correlation matrix results and is statistically significant in 5% significance level.

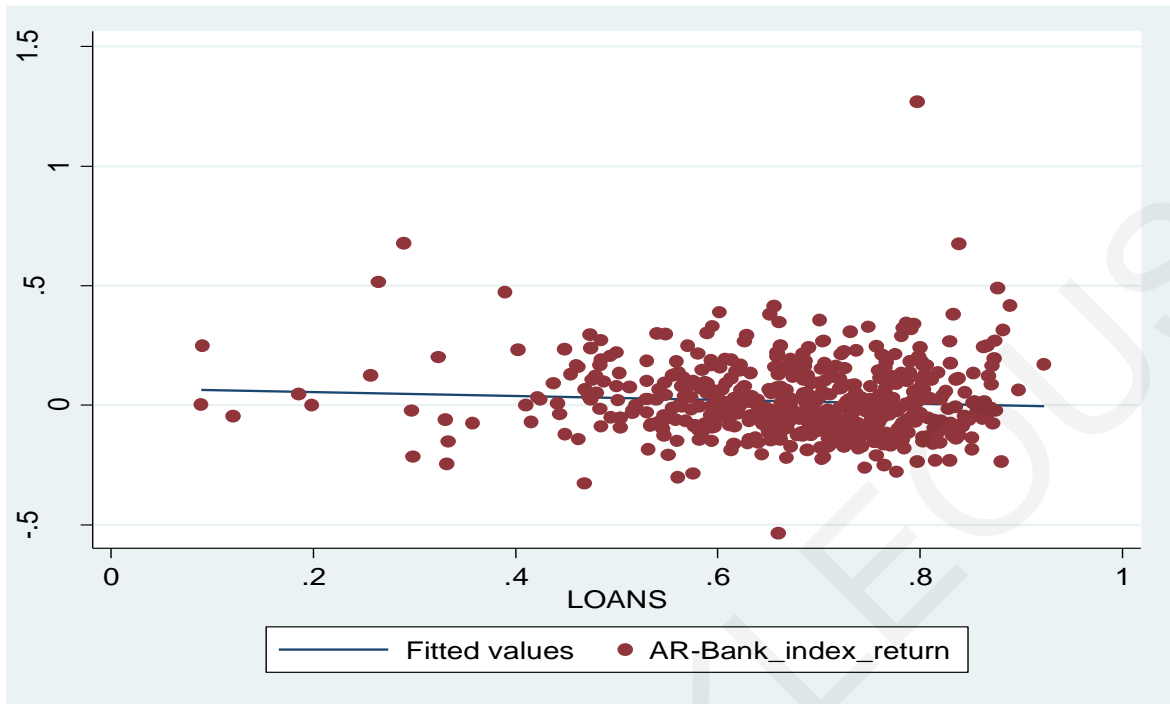


Figure 6 Scatter plot – LOANS vs E_r

EMPIRICAL ANALYSIS

Empirical Strategy

In this study I examine whether and how banks branches in Turkey affect bank stock excess returns. The dataset consists of 553 banks (observations) and are for the year of 2020. For my estimation, the ordinary least squares (OLS) model will be used. Data was split by the index variables, i.e., by country and year of the 1500 banks that were included in the initial dataset, before fitting the models. After ensuring that no extreme values were included in the continuous data, only Banks with available data were included in my sample. Also, all non-listed banks excluded from the initial dataset.

The OLS assumption assumes that all topics are homogeneous. In the regression model, this reduces the heterogeneity - defined as variation in cross-sectional research outcomes - that may exist among different subjects under study (Woodridge, 2010). The method calculates the relationship between one or more independent variables and a dependent variable by minimizing the number of the squares in the difference between the observed and predicted values of the dependent variable configured as a straight line.

Robust regression is a less restrictive version of least squares regression that uses fewer assumptions. When outliers are present in the results, it provides far better regression coefficient estimates. In least squares regression, outliers violate the assumption of normally distributed residuals. They tend to skew the least squares coefficients by wielding more power than they should. Robust regression methods remain accurate in the presence of different forms of noise are critical. Even when half of the data is badly corrupted, the process produces the right result. Complementing it with a weighted least-squares-based procedure improves its performance in the presence of Gaussian noise (Meer, P., Mintz, D., Rosenfeld, A. et al. 1991).

STATISTICAL MODEL

As mentioned in the Empirical Strategy section to capture the effect of whether and how banks branches in Turkey affect their stock returns, I will estimate an OLS model. To be more precise, the regression model to be estimated takes the following form:

$$Er_i = \beta_0 + \beta_1 NPLLOAN_i + \beta_2 INTINC_i + \beta_3 DIV_i + \beta_4 EFF_i + \beta_5 LOANS_i + \beta_6 LIQUID_i + \beta_7 INT_i + \beta_8 Spread_i + \beta_9 TurkeyPresence_i + \beta_{10} Country_i + \epsilon_i$$

Equation 1

Where i denotes the bank. The dependent variable Er represents the change in excess returns for each individual bank for the period between 1st of January 2020 and 11th of November 2020. I measure the exposure of stock price to NPLLOAN using the estimated coefficient $\hat{\beta}_1$ from the above regression. To continuous, $\hat{\beta}_0$ is a constant that varies across banks. Coefficient $\hat{\beta}_2$ measures the effect of an increase in interest income ($INTINC$) to banks' excess return. Changes in a stock price driven by dividend payout ratio (DIV) are captured by the $\hat{\beta}_3$ coefficient. Coefficient $\hat{\beta}_4$ and $\hat{\beta}_5$ measure the effect of efficiency ratio (EFF) and total loans as a percentage to total assets ($LOANS$) respectively to the excess bank stock returns. The effect of the volume of each bank's liquid assets to total assets ($LIQUID$) on excess returns is measured through the coefficient $\hat{\beta}_6$. Coefficient $\hat{\beta}_7$ measures the effect of interest expense to average assets (INT) to bank stock excess returns.

As mentioned previously, variables are expressed in domestic currency. In order to control for that I include the variable $Spread$ which counts the additional risk over the German risk-free rate. The effect of the risk over the risk-free rate ($Spread$) on change in bank stock prices is measured by $\hat{\beta}_8$. Moreover, I include a dummy variable that takes the value one for each bank that have subsidiaries in Turkey and zero otherwise. Coefficient $\hat{\beta}_9$ shows the change in the stock returns for the banks that have subsidiaries in Turkey comparing to those do not have subsidiaries in Turkey. Last but not least, $\hat{\beta}_{10}$ indicates the changes in excess returns within each country.

EMPIRICAL RESULTS

STATISTICAL RESULTS

In this section, I present the results of the equation 1. Before doing so, it is important to mention that all variables were tested for missing values before fitting the regression model. More precisely, in this model I do not include variables that had more than 10% missing observations, according to each banks' financial statement transparency. For the rest of the variables, that less than 10% of the data is not available, the respective mean values are used. Furthermore, to check whether there is presence of multicollinearity, variance inflation factor (VIF) values were calculated for each variable and as mentioned before less than 10 VIF would suggest no multicollinearity. Is important to mention that regression analysis is not robust because for the dummy variable TurkeyPresence and for all countries except U.S there is no observation in both groups with branches in turkey and without branches in Turkey. There is only one observation with a bank that have branches in Turkey. Therefore, most of the regression results cannot be used.

OLS regressions model (PART A)

In Table 1 6, part a I present the results of the OLS regressions model for 3 alternatives models. My first attempt, model (1) captures five important variables Non-performing loans to loans (NONLOAN), Interest income to average assets (INTINC), Turkey Presence, Spread and Country. Results show that the three following variables NONLOAN, Turkey Presence and Spread are not statistically significant in any level. Only for some regions, Country and interest income variables are statistically significant.

If a bank operates in Japan, the bank excess return increases by 0.504 percentage points More than one that operates in U.S at a significance level of 10%. This makes sense as Japanese banks are among the five largest banks in the world, according to the S&P Market Intelligence rankings. Furthermore, interest income as a percentage of average assets is statistically significant in 5%, indicating that an increase in a bank's interest income by 1 percentage point results in an increase in the bank's excess return by 2.393 percentage points. Results for INTINC variable are consistent with expectations as income can generate higher returns.

Next, I ran a model (2) by adding DIV and EFF variables. The multiple regression model with all seven predictors produced $R^2 = 0.08$. Higher compared to model's (1) $R^2 = 0.059$, indicating that in model (2) the proportion of the variance for a dependent variable that is explained by independent variables is higher in model (2) than in model (1). Looking at the p-value of the t-test for each predictor is observable that dividend pay-out ratio (DIV), and some groups of Country variable, Japan and Pakistan contributes to the model, but Non-performing loans to loans (NPLLOAN), Interest income to average assets (INTINC), efficiency ratio (EFF) and rest regions for Country variable does not.

In the banking sector, a dividend pay-out ratio can be used by investors as indicator to forecast potential stock returns and, as a result, prepare their investment strategies in this sector. The dividend pay-out ratio has an adverse effect on bank stock price volatility and has a statistically significant effect on bank stock excess returns. Empirical findings indicate that a higher dividend pay-out ratio by 1 percentage point is associated with 0.0623 percentage point lower bank excess return in a high level of significance of 1%. These results are not consistent with previous studies (Donald B. Keim 1985). Earnings that are not paid to shareholders are reinvested and this means higher long-run growth. Results imply that from some point of view, investors see higher dividend policies as an opportunity cost in the long run. For the country variable some countries become statistically significant Japan and Pakistan in 5% and 10% respectively. If a bank operates in Japan, the bank stock return increases by 0.530 percentage point more than one that operates in the U.S at a significance level of 5%, coefficient is slightly higher than in model 1. Banks that operate in Pakistan have 1.301 percentage points lower bank excess returns compare to banks that operate in the U.S.

Last, model in (3) with all available variables that include three extra parameters loans to assets (LOANS), liquid assets to assets (LIQUID) and interest expense to average assets (INT). Model (3) indicates that 11.2% of the variance in bank stock returns can be predicted from the variables NPLLOAN, INTINC, DIV, EFF, LOANS, LIQUID, INT, TurkeyPresence, Spread and County. The p-value used in testing the null hypothesis that the coefficient is 0 shows that NPLLOAN and INTINC become statistically significant in 5% and 10% significance level respectively, after adding new variables.

A non-performing loan is a key measure for each financial institution and as expected has a negative and statistically significant effect on bank stock returns. Results show that an increase in non-performing loans by 1 percentage point is associated with a decrease in bank stock returns by 1.588

percentage points this empirical result provide support to previous study of John Timothy A. 2018. The impact of non-payment of debts on bank profitability can be described as a potential bank failure, a barrier to further lending, a decrease in profit, and negative economic growth in the whole economy.

Another variable that become statistically significant after adding all variables in the model is INTINC. The coefficient INTINC enter the regression model with positive coefficient implies that an increase in interest income as a percent to average assets by 1 percentage point will lead to an increase in bank stock returns by 4.127 percentage points. From some point of view, this result is expected as more income can transformed into returns. To review, Stiroh and Rumble (2006) find that the financial holding companies' diversification advantages are offset by increased exposure to non-interest activities, which are much more volatile but not inherently more profitable than interest-generating activities.

Loans to assets is negative and significant in 5% significance level. Therefore, for 1 percentage point of increase in Loans to Assets, bank stock excess returns decreased by 0.255 percentage points. This variable shows a bank's ability to cover loan losses and customer withdrawals. Investors keep an eye on banks' loans to assets to ensure that there is enough liquidity to cover loans in the event of a downturn that results in defaults. On the other side loans are the main source of profitability for bank and setting an optimal percentage of loans to assets is very crucial.

Interest expense to average assets is positive and statistically significant in 10% significance level. Regarding the coefficient of this variable, there are two possible sides for the coefficient with an explanation. An increase in expense with all other variables remain constant is expected to decrease the value of the bank. On the other side, the denominator of this ratio is average assets, for bank assets include loans and from loans banks generate profit and therefore increase their value. From this side, an increase in interest expense to average assets will lead to higher bank stock returns. Findings of the model (3) show that an increase in interest expense to the average asset by 1 percentage point is associated with an increase in bank excess returns by 5.032 percentage points.

The aim of this study is to examine the effect of the presence of banks in Turkey on the share price of banks. This effect is considered by the TurkeyPresence variable. This variable becomes negative and statistically significant in 5% significance level as expected. A bank that has branches in Turkey has a decrease in excess returns 0.292 percentage points more than if a bank has no branches in Turkey.

Political instability in Turkey did not leave the banking system unaffected and as expected lead to a lower bank excess return.

Another variable becomes statistically significant in the model (3). Spread is positive and statistically significant in 1% significance level. This variable counts additional risk over German risk-free. As expected, an increase in Spread by 1 percentage point leads to an increase in bank stock returns by 18.87 percentage points. Generally, a higher risk is linked to a higher return.

Last, for the Country categorical variable China, France, Pakistan, Japan, Saudi Arabia, and Turkey, becomes statistically significant. If a bank operates in France, the bank excess return increases by 0.459 percentage points more than one that operates in the U.S. Banks that operate in Pakistan have 1.683 percentage points lower bank excess returns compared to banks that operate in the U.S. According to the study of M. Alghazo, Z. Kazmi and G. Latif (2017) Pakistan banking sector are highly exposed to cyber-attacks which may affect the stock return of those banks. For Japan, the variable remains statistically significant at 5% significant level as in model (1) and model (2) and positive with a sharper coefficient.

Robust OLS regressions model (PART B)

In table 2, part b I present the results of the robust OLS regressions model for 3 alternative models same as part a. As mentioned in the Empirical analysis section, Robust regression is a less restrictive version of least squares that uses fewer assumptions. Results seem to be statistically significant in a higher level of significance and at the same time, more variables become statistically significant by this estimation.

It is important to note, that in all 3 models in part b the key variable TurkeyPresence is statistically significant in 1% 5% and 10% significant level and is negative as expected. The same applies to the Spread variable which is also statistically significant in 1% 5% and 10% and has a positive coefficient indicating that additional risk over Germany is associated with higher bank excess return. In addition, the categorical variable of Country becomes statistically significant for all countries. Last, the dividend payout ratio remains the same as part a but with a reducing significance level from 10% to 5%. Additionally, one variable, the interest expense to average assets become non statistically significant with the robust estimation.

Model (3), with all available variables indicates that 11.20% of the variance in bank stock returns can be predicted from the variables NPLLOAN, INTINC, DIV, EFF, LOANS, LIQUID, INT, TurkeyPresence, Spread and County same as non-Robust estimation. Focusing on the p-value of the t-test for each predictor is observed that all variables are statistically significant except efficiency ratio, liquid assets to total assets and interest expense to average assets.

Results for NPLLOAN, INTINC, DIV, LOANS, TurkeyPresence Spread and country are the same with part a the non-robust estimation. For some of the regions, results will be analyzed in more detail. Analyze shows that a bank that operates in China receives 0.3574 percentage points lower bank stock return than a bank that operates in the U.S. On the other hand, a bank that operates in German receives 0.0004 percentage points higher stock return than a bank that operates in U.S. For Spain, banks show that operation in Spain leads to 0.3257 percentage points higher bank stock return compared to a U.S bank. In addition, if a bank operates in United Kingdom, the bank stock return increases by 0.2300 percentage points more than one that operates in the U.S.

It is important to mention that this regression analysis failed to produce robust results. This happened due to the lack of data as does not include banks from all countries with no presence in Turkey. Also, does not include specific variable for each region as a control. Furthermore, the existence of different countries with extremely different characteristics especially in EU and US lead to bias results.

Part A

VARIABLES	(1) Er	(2) Er	(3) Er
NPLLOAN	-1.146 (0.779)	-1.103 (0.787)	-1.588** (0.784)
INTINC	2.393** (1.143)	1.601 (1.183)	4.127*** (1.411)
DIV		-0.0623*** (0.0205)	-0.0615*** (0.0202)
EFF		0.0932 (0.0614)	0.0761 (0.0620)
LOANS			-0.255** (0.114)
LIQUID			0.0400 (0.118)
INT			5.032* (2.767)
TurkeyPresence	-0.203 (0.152)	-0.204 (0.151)	-0.293* (0.150)
Spread	13.07 (9.710)	14.34 (9.662)	18.87** (9.584)
CN	-0.313 (0.219)	-0.309 (0.217)	-0.357* (0.214)
DE	-0.157 (0.313)	-0.149 (0.311)	0.000404 (0.308)
ES	0.216 (0.269)	0.246 (0.268)	0.326 (0.265)
FR	0.349 (0.276)	0.363 (0.273)	0.459* (0.271)
GB	0.201 (0.258)	0.199 (0.255)	0.230 (0.252)
IL	0.141 (0.223)	0.139 (0.221)	0.199 (0.218)
JP	0.504* (0.270)	0.530** (0.267)	0.561** (0.264)
KW	0.149 (0.187)	0.149 (0.185)	0.147 (0.182)
PK	-1.176 (0.784)	-1.301* (0.781)	-1.683** (0.775)
PL	0.144 (0.203)	0.135 (0.201)	0.208 (0.199)
QA	-0.0186 (0.156)	0.00675 (0.155)	0.0685 (0.154)
SA	-0.939 (0.677)	-1.019 (0.673)	-1.309* (0.667)
TR	-1.228 (1.020)	-1.373 (1.015)	-1.817* (1.006)
US (omitted)	-	-	-
Constant	-0.254* (0.149)	-0.282* (0.159)	-0.289 (0.178)
Observations	553	553	553
R-squared	0.059	0.080	0.112

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Part B			
VARIABLES	(1)	(2)	(3)
	Er	Er	Er
NPLLOAN	-1.146 (0.941)	-1.103 (0.929)	-1.588* (0.962)
INTINC	2.393* (1.248)	1.601 (1.286)	4.127*** (1.572)
DIV		-0.0623** (0.0259)	-0.0615** (0.0273)
EFF		0.0932 (0.0741)	0.0761 (0.0762)
LOANS			-0.255** (0.122)
LIQUID			0.0400 (0.122)
INT			5.032 (4.065)
TurkeyPresence	-0.203*** (0.0150)	-0.204*** (0.0147)	-0.293*** (0.0301)
Spread	13.07*** (1.878)	14.34*** (2.106)	18.87*** (2.718)
CN	-0.313*** (0.0404)	-0.309*** (0.0392)	-0.357*** (0.0461)
DE	-0.157*** (0.0282)	-0.149*** (0.0303)	0.000404 (0.0571)
ES	0.216*** (0.0458)	0.246*** (0.0494)	0.326*** (0.0623)
FR	0.349*** (0.113)	0.363*** (0.103)	0.459*** (0.141)
GB	0.201*** (0.0178)	0.199*** (0.0182)	0.230*** (0.0294)
IL	0.141*** (0.0141)	0.139*** (0.0147)	0.199*** (0.0230)
JP	0.504*** (0.0214)	0.530*** (0.0225)	0.561*** (0.0339)
KW	0.149*** (0.0126)	0.149*** (0.0145)	0.147*** (0.0156)
PK	-1.176*** (0.123)	-1.301*** (0.148)	-1.683*** (0.203)
PL	0.144*** (0.0232)	0.135*** (0.0239)	0.208*** (0.0370)
QA	-0.0186* (0.0105)	0.00675 (0.0205)	0.0685** (0.0302)
SA	-0.939*** (0.141)	-1.019*** (0.150)	-1.309*** (0.186)
TR	-1.228*** (0.209)	-1.373*** (0.225)	-1.817*** (0.288)
US (omitted)	-	-	-
Constant	-0.254*** (0.0429)	-0.282*** (0.0797)	-0.289*** (0.110)
Observations	553	553	553
R-squared	0.059	0.080	0.112

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 1 6 OLS regressions model - PART A & Robust OLS regression model - PART B

DISCUSSION

Credit risks, liquidity risks, operating risks, currency risk, interest rate risk, and political risks are the main risk that banks faces, same with other financial institutions. Credit risk is the most important component of a bank's insolvency risk. Because of the economy's micro and macro asset-liability structure, this variable is the primary cause of systemic crises. Changes in historical closing prices for each bank between the examining period are used to reflect the bank's profitability, and non-performing loans to total loans are used to represent the credit risk, in order to assess the relationship between credit risk and profitability. According to the OLS regression model, the findings for the dependent variable support the fact that credit risk is an important component for insolvency for the banking sector as this variable is negative and statistically significant.

More specifically, this report aims to investigate the change in each bank stock price between the period of January 2020 and November 2020. In accordance with the previous research that focused on basic microeconomic variables, this study, extended from past analyses by combined variables that are used in models from different studies.

Furthermore, an additional variable that measures the exposure of banks to Turkey's economy is used; TurkeyPresence. This study differs from previous literature as the majority of previous literature emphasized EU banks and US banks, while this adds information regarding fifteen countries but with the majority of them from US banks. The additional variables that are used provide new evidence regarding the banks' exposure to Turkey's economy and political instability in the period that presidential elections take place.

This study is an investigation of the impact of interest income, interest expense, non-performing loans, dividend payout ratio, efficiency ratio, liquid assets, loans to assets, the presence of banks to Turkey, spread on bank's excess returns. The volatility of stock returns and more specifically excess returns has been of special importance in recent years as a consequence of shifts in monetary policy regimes and the political instability. In this analysis another motivation to investigate the changes in bank excess returns comes from the fear of sanctions that may face Turkey due to the provocative policy of Turkey and how this sanction will affect banking system. This project focused on the banks that have subsidiaries in Turkey and the association of bank performance between the period of 2020. Finds that presence of subsidiaries in turkey is associated with lower bank excess return, dummy

variables that are used to measure the impact of the existence of branches to Turkey are negative and statistically significant in all levels 1%,5%, and 10%.

Limitation of study

Throughout this study, this research faces certain limitations. The major limitation occurs in gathering data such as Market Risk, Currency Risk, Investment Risk, Business Risk Leverage etc. More specifically, lack of data for both control groups in our key variable TurkeyPresence lead to bias results. From the regression result, the R-squared is lower as expected due to above issue. Data are biased as include only banks with branches in Turkey for all Countries except U.S. In addition, the paper suspect this is due to the presence of other variables that affect the bank profitability and are not considered in the model.

Another limitation of this study has to do with the sample of banks. The sample consist of 553 banks and 529 of them are in the U.S. This occurs because this study did not manage to find available data for the other geographical regions. This result in bias data and therefore, result of this study cannot used as a guide.

Even though we used market adjusted returns and used several control variables, the results should be interpreted with caution as it would have been optimal to have access to a larger sample.

Future option

Future researchers will be able to take advantage of this study. The future researcher may conduct research by including more microeconomics variables for instance dividend payout ratio and efficiency ratio. In addition, shows a different combination of variables and how a dummy variable as Turkey's presence can be used to show the effect of a specific economy on the broad banking industry.

CONCLUSION

The additional risk over risk free for each country that a bank operates is considered to be the most important and influential variable that affects the excess banks stock returns within the period of January 2020 and November 2020. This study aimed to empirically examines the exposure of banks to Turkey economy. Finds that banks with subsidiaries in Turkey faced a drop in their stock price in a period that political instability dominates. The relationship between asset quality that are measure by total loan to total assets and bank performance is negative and significant. As a result, it was determined that an unsustainable rise in loans is a critical risk factor for banks.

Findings indicate that non-performing loans to total loans and bank stock returns have a negative relationship. This finding backs up previous research on the topic. Because of the negative relationship, as the non-performing loan to total loans increases, the capital used by banks to carry out their investments and operations decreases, and thus the profit of banks decreases. Credit risk, which lowers banks' financial performance, can be considered a significant issue in the banking industry. Consequently, it is recommended for banks to focus on high-profit-generating activities that will enable their capital to grow quickly in their operation. Since credit risk is a determinant of performance, credit risk management becomes increasingly important. For banks, the process of successful credit risk management is critical. Banks should put more emphasis on credit risk management, especially in terms of loan monitoring. Modern credit risk management strategies should be prioritized by managers. The fact that banks seek diversification in their revenue-generating activities also aids successful credit risk management.

The main purpose of this study is to determine the effect of Turkish currency crisis to the broad banking system. Within the period of sample examines the U.S presidential election take place and political instability hikes following the presidential transition to Joe Biden. Many of the possible flashpoints between NATO allies were smoothed over-under outgoing President Donald Trump, due to a friendly relationship between Trump and Turkish President Recep Tayyip Erdogan. There is a risk that some of those tensions will erupt under a Joe Biden administration. Based on Biden's previous remarks, it appears that Washington will take a harder stance. In a January interview, Biden referred to Erdogan as an "autocrat," criticized his treatment of Kurds, and said that Erdogan "must pay a price." He also

indicated that the US should back Turkish opposition leaders in their fight against Erdogan. Over the coming months, investors and regional analysts will be monitoring the Biden-Erdogan dynamic. Results show that investors adopt the pessimistic mood as stock returns falls for the majority of banks within this period.

Results generally coincide with previous studies as dividend payout ratio is negatively correlated with bank stock returns. Earning that are not paid to shareholders are reinvested and this means higher long-run growth. From some point of view, investors see higher dividend policies as an opportunity cost in the long run.

Results of this study will give a better insight for banks on how to handle nonperforming loans (NPLs) more efficiently in order to prevent potential financial crises. This is critical for bank profitability and risk-taking, and when combined with other important factors, banks will be able to avoid future failures. This study provides a lesson on how a currency crisis in one emerging market can create spillovers over the global markets and ring bells to the financial institutions to diversify risk to avoid failure.

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APPENDIX

FIRM NAME			
BOK Financial Corporation	OceanFirst Financial Corp.	Luther Burbank Corporation	TriState Capital Holdings, Inc.
Arrow Financial Corporation	Provident Financial Holdings, Inc.	Severn Bancorp, Inc.	ESSA Bancorp, Inc.
Associated Banc-Corp	Crazy Woman Creek Bancorp Incorporated	Investors Bancorp, Inc.	Merchants Bancorp
The Bank of New York Mellon Corporation	Capital One Financial Corporation	OFG Bancorp	Business First Bancshares, Inc.
Bank of South Carolina Corporation	First National Corporation	The Community Financial Corporation	First Guaranty Bancshares, Inc.
Bryn Mawr Bank Corporation	Peoples-Sidney Financial Corporation	Wayne Savings Bancshares, Inc.	Yapi ve Kredi Bankası A.S.
Bank of Hawaii Corporation	Pacific Premier Bancorp, Inc.	Riverview Bancorp, Inc.	Atlantic Capital Bancshares, Inc.
Popular, Inc.	First Robinson Financial Corporation	First Capital, Inc.	Quaint Oak Bancorp, Inc.
Cathay General Bancorp	Flagstar Bancorp, Inc.	Comunibanc Corp.	blueharbor bank
Commerce Bancshares, Inc.	Pinnacle Bancshares, Inc.	County Bancorp, Inc.	First Foundation Inc.
Community Bank System, Inc.	Timberland Bancorp, Inc.	Peoples Bancorp, Inc.	Orange County Bancorp, Inc.
Cullen/Frost Bankers, Inc.	Mercantile Bank Corporation	Pinnacle Bankshares Corporation	Suncrest Bank
City Holding Company	High Country Bancorp, Inc.	Community West Bancshares	Bank of Marin Bancorp
JPMorgan Chase & Co.	HSBC Holdings plc	Peapack-Gladstone Financial Corporation	PCB Bancorp
Comerica Incorporated	Banco Bilbao Vizcaya Argentaria, S.A.	Northwest Bancshares, Inc.	Pacific Enterprise Bancorp
Century Bancorp, Inc.	Quarry City Savings & Loan Association	Guaranty Bancorp, Inc.	CBTX, Inc.
Central Pacific Financial Corp.	Mid-Southern Bancorp, Inc.	Community First Bancorporation	Level One Bancorp, Inc.
CVB Financial Corp.	1st Federal Savings Bank of SC, Inc.	Northumberland Bancorp	Sound Financial Bancorp, Inc.
Regions Financial Corporation	Community Heritage Financial, Inc.	Absecon Bancorp	Powszechna Kasa Oszczednosci Bank Polski Akcyjna
F.N.B. Corporation	MBT Bancshares, Inc.	Pathfinder Bancorp, Inc.	South Atlantic Bancshares, Inc.
First Bancorp	Bank OZK	People's Bank of Commerce	Türkiye Vakıflar Bankası Türk Anonim Ortakligi
First Citizens BancShares, Inc.	The Farmers Bank of Appomattox	American Business Bank	Grand River Commerce, Inc.
M&T Bank Corporation	The First Citizens National Bank of Upper Sandusky	Texas Capital Bancshares, Inc.	GSD Holding A.S.
First Financial Bancorp.	River City Bank	Summit State Bank	Türkiye Halk Bankası A.S.
First Hawaiian, Inc.	Bank of Utica	BNP Paribas SA	Rothschild & Co SCA
Fifth Third Bancorp	The Bank of Fincastle	Brookline Bancorp, Inc.	Kuwait Finance House K.S.C.P.
The First of Long Island Corporation	Peoples Trust Company	Eagle Bancorp, Inc.	ServisFirst Bancshares, Inc.
First Midwest Bancorp, Inc.	North Dallas Bank & Trust Co.	Macatawa Bank Corporation	Oak View National Bank
First Merchants Corporation	Exchange Bank (Santa Rosa, CA)	NASB Financial, Inc.	Malvern Bancorp, Inc.
First Horizon Corporation	Cashmere Valley Bank	The National Commercial Bank	TGR Financial, Inc.
Fulton Financial Corporation	First Bank of Ohio	Salisbury Bancorp, Inc.	Auburn Bancorp, Inc.
Republic First Bancorp, Inc.	BancorpSouth Bank	Heritage Commerce Corp	Merchants & Marine Bancorp, Inc.
Huntington Bancshares Incorporated	The Adirondack Trust Company	First Niles Financial, Inc.	Oak Valley Bancorp
Independent Bank Corporation	Jonestown Bank & Trust Co.	FNCB Bancorp, Inc.	AB&T Financial Corp.
Independent Bank Corp.	Amalgamated Financial Corp.	Greene County Bancorp, Inc.	Spirit of Texas Bancshares, Inc.
KeyCorp	Bank of Botetourt	Sterling Bancorp	Home Bancorp, Inc.
Bank of America Corporation	Jefferson Security Bank	East West Bancorp, Inc.	First Savings Financial Group, Inc.
NBT Bancorp Inc.	The National Capital Bank of Washington	CF Bankshares Inc.	Coeur d'Alene Bancorp, Inc.
Wells Fargo & Company	Farmers & Merchants Bank of Long Beach	First BanCorp.	Avidbank Holdings, Inc.
Northern Trust Corporation	The First National Bank of Groton	Richmond Mutual Bancorporation, Inc.	Embassy Bancorp Inc.
Old National Bancorp	Burke & Herbert Bank & Trust Company	Citigroup Inc.	Territorial Bancorp Inc.
Park National Corporation	W.T.B. Financial Corporation	TFS Financial Corporation	Allegiance Bancshares, Inc.
Community Trust Bancorp, Inc.	Bank of Commerce Holdings	Capitol Federal Financial, Inc.	Industrial & Commercial Bank of China Ltd.
The PNC Financial Services Group, Inc.	Financial Institutions, Inc.	Columbia Financial, Inc.	Live Oak Bancshares, Inc.
Seacoast Banking Corporation of Florida	Alpine Banks of Colorado	CBM Bancorp, Inc.	CrossFirst Bankshares, Inc.
Simmons First National Corporation	Community Bancshares, Inc. (McArthur, OH)	BankFinancial Corporation	Oregon Bancorp, Inc.
SVB Financial Group	Kentucky Bancshares, Inc.	First Capital Bancshares, Inc.	Albaraka Türk Katılım Bankası A.S.
Synovus Financial Corp.	Croghan Bancshares, Inc.	Capital Bancorp, Inc.	Versailles Financial Corporation
1st Source Corporation	Andover Bancorp, Inc.	LCNB Corp.	National Bank Holdings Corporation
S&T Bancorp, Inc.	Southern BancShares (N.C.), Inc.	U.S. Bancorp	Veritex Holdings, Inc.
State Street Corporation	F & M Bank Corp.	Farmers & Merchants Bancorp	SmartFinancial, Inc.
Tompkins Financial Corporation	Fauquier Bankshares, Inc.	Altabancorp	First Republic Bank
Trustmark Corporation	Citizens Holding Company	Red River Bancshares, Inc.	Standard AVB Financial Corp.
TrustCo Bank Corp NY	First Farmers and Merchants Corporation	Southern First Bancshares, Inc.	U & I Financial Corp.
AmeriServ Financial, Inc.	United Bancorporation of Alabama, Inc.	Peoples Bancorp of North Carolina, Inc.	RBB Bancorp
United Bankshares, Inc.	Central Banccompany, Inc.	M&F Bancorp, Inc.	Prime Meridian Holding Company
UMB Financial Corporation	Republic Bancorp, Inc.	Metropolitan Bank Holding Corp.	Esquire Financial Holdings, Inc.
Valley National Bancorp	Prosperity Bancshares, Inc.	TowneBank	Ocoee Federal Financial Corp.
Westamerica Bancorporation	Union Bankshares, Inc.	Fidelity D & D Bancorp, Inc.	IF Bancorp, Inc.
Washington Trust Bancorp, Inc.	Boyle Bancorp, Inc.	1st Constitution Bancorp	BankGuam Holding Company
WesBanco, Inc.	Dacotah Banks, Inc.	Eagle Bancorp Montana, Inc.	Customers Bancorp, Inc.
Zions Bancorporation, National Association	First Interstate BancSystem, Inc.	Harleysville Financial Corporation	Habib Bank Limited
First Financial Corporation	Mackinac Financial Corporation	Somerset Trust Holding Company	Provident Bancorp, Inc.
First Commonwealth Financial Corporation	Eastern Michigan Financial Corporation	Hanmi Financial Corporation	FS Bancorp, Inc.
First United Corporation	FB Financial Corporation	Pacific Mercantile Bancorp	HomeTrust Bancshares, Inc.
Peoples Bancorp Inc.	Citizens Financial Group, Inc.	Hope Bancorp, Inc.	Qatar National Bank (Q.P.S.C.)
BancFirst Corporation	South State Corporation	Bank Hapoalim B.M.	First Northwest Bancorp
Renasant Corporation	Canandaigua National Corporation	Axos Financial, Inc.	The Commercial Bank (P.S.Q.C.)

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FIRM NAME			
TriCo Bancshares	The First Bancorp, Inc.	First Northern Community Bancorp	Hilltop Holdings Inc.
Stock Yards Bancorp, Inc.	CNB Corporation	Pinnacle Financial Partners, Inc.	Virginia National Bankshares Corporation
German American Bancorp, Inc.	United Bancshares, Inc.	GrandSouth Bancorporation	Emirates NBD Bank PJSC
First Financial Bankshares, Inc.	HCBC Financial Corp.	Central Valley Community Bancorp	Investar Holding Corporation
Atlantic Union Bankshares Corporation	Foresight Financial Group, Inc.	Sierra Bancorp	HV Bancorp, Inc.
Ameris Bancorp	Fleetwood Bank Corporation	United Security Bancshares	Aquesta Financial Holdings, Inc.
ACNB Corporation	Apollo Bancorp, Inc.	The Freedom Bank of Virginia	Professional Holding Corp.
Juniata Valley Financial Corp.	ChoiceOne Financial Services, Inc.	Elmer Bancorp, Inc.	Mars Bancorp, Inc.
Lakeland Financial Corporation	CIB Marine Bankshares, Inc.	Western New England Bancorp, Inc.	Paragon Financial Solutions, Inc.
Mid Penn Bancorp, Inc.	Peoples Financial Services Corp.	Mauch Chunk Trust Financial Corp.	MetroCity Bankshares, Inc.
Old Second Bancorp, Inc.	Neffs Bancorp, Inc.	Signature Bank	Comerstone Community Bancorp
American National Bankshares Inc.	Katahdin Bankshares Corp.	Keamy Financial Corp.	Cincinnati Bancorp, Inc.
Orrstown Financial Services, Inc.	Benchmark Bankshares, Inc.	Woodlands Financial Services Company	FVCBancorp, Inc.
QNB Corp.	Baker Boyer Bancorp	Northrim Bancorp, Inc.	CMUV Bancorp
Sandy Spring Bancorp, Inc.	Peoples Ltd.	First Reliance Bancshares, Inc.	Capstar Financial Holdings, Inc.
First US Bancshares, Inc.	Honat Bancorp, Inc.	Plumas Bancorp	HarborOne Bancorp, Inc.
Univest Financial Corporation	Byline Bancorp, Inc.	Mission Bancorp	SouthPoint Bankshares, Inc.
CCFNB Bancorp, Inc.	Heartland Financial USA, Inc.	Washington Business Bank	Parkway Acquisition Corp.
ConnectOne Bancorp, Inc.	CITBA Financial Corporation	Nicolet Bankshares, Inc.	OP Bancorp
Chemung Financial Corporation	Marquette National Corporation	Provident Financial Services, Inc.	MainStreet Bankshares, Inc.
Citizens & Northern Corporation	Bank First Corporation	CCSB Financial Corp.	Endeavor Bank
Community Bancorp	HBT Financial, Inc.	Randolph Bancorp, Inc.	John Marshall Bancorp, Inc.
Cortland Bancorp	West Bancorporation, Inc.	Trinity Bank N.A.	Farmers and Merchants Bankshares, Inc.
First Busey Corporation	Crystal Valley Financial Corporation	York Traditions Bank	BayCom Corp
Farmers National Banc Corp.	Southside Bankshares, Inc.	First Financial Northwest, Inc.	PCSB Financial Corporation
FirstWestOne Financial Group, Inc.	MidWestOne Financial Group, Inc.	Northfield Bancorp, Inc. (Staten Island, NY)	River Valley Community Bancorp
First National of Nebraska, Inc.	Hills Bancorporation	Surrey Bancorp	PDL Community Bancorp
Franklin Financial Services Corporation	CNB Bank Shares, Inc.	BCB Bancorp, Inc.	California Bancorp
Horizon Bancorp, Inc.	Liberty Bankshares, Inc. (Ada, OH)	Select Bancorp, Inc.	FFBW, Inc.
Columbia Banking System, Inc.	First Business Financial Services, Inc.	First Western Financial, Inc.	CBB Bancorp, Inc.
Boston Private Financial Holdings, Inc.	Summit Financial Group, Inc.	Independent Bank Group, Inc.	First Choice Bancorp
First Mid Bankshares, Inc.	United Community Banks, Inc.	Santa Cruz County Bank	1895 Bancorp of Wisconsin, Inc.
Codorus Valley Bancorp, Inc.	Oxford Bank Corporation	Bank of the James Financial Group, Inc.	Rhinebeck Bancorp, Inc.
Commercial National Financial Corporation	Limestone Bancorp, Inc.	Pacific Valley Bank	TEB Bancorp, Inc
Capital City Bank Group, Inc.	UNB Corp.	Citizens Community Bancorp, Inc.	Pioneer Bancorp, Inc. (MHC)
C&F Financial Corporation	Muncy Bank Financial, Inc.	Citizens Bancorp of Virginia, Inc.	First Seacoast Bancorp
Tri City Bankshares Corporation	Middlefield Banc Corp.	Third Century Bancorp	Mitsubishi UFJ Financial Group, Inc.
CNB Financial Corporation	Heartland BancCorp	Coastal Financial Corporation	Bridgewater Bankshares, Inc.
First Community Bankshares, Inc.	1867 Western Financial Corporation	Bank7 Corp.	Metro Phoenix Bank, Inc.
Blackhawk Bancorp, Inc.	Isabella Bank Corporation	Village Bank and Trust Financial Corp.	Solera National Bancorp, Inc.
Bar Harbor Bankshares	Lakeland Bancorp, Inc.	Silvergate Capital Corporation	Town Center Bank
Chesapeake Financial Shares, Inc.	Morris State Bankshares, Inc.	MVB Financial Corp.	Chino Commercial Bancorp
Harford Bank	FNB, Inc.	CoastalSouth Bankshares, Inc.	Republic Bank of Arizona
First National Bank Alaska	Emclaire Financial Corp	Madison County Financial, Inc.	American Riviera Bank
Summit Bankshares, Inc.	Midland States Bancorp, Inc.	Home Federal Bancorp, Inc. of Louisiana	Bankwell Financial Group, Inc.
BNCCORP, Inc.	Home Bankshares, Inc. (Conway, AR)	Prudential Bancorp, Inc.	The Bank of Princeton
Civista Bankshares, Inc.	Century Financial Corporation	Meridian Corporation	Seherbank T.A.S.
Auburn National Bancorporation, Inc.	Guaranty Bankshares, Inc.	First Resource Bank	Türkiye İş Bankası A.S.
Colony Bancorp, Inc.	Origin Bancorp, Inc.	Triumph Bancorp, Inc.	Aareal Bank AG
Fentura Financial, Inc.	Preferred Bank	White River Bankshares Co	Akbank T.A.S.
Evans Bancorp, Inc.	Eagle Financial Services, Inc.	First Bank	People's United Financial, Inc.
Dimeco, Inc.	CSB Bancorp, Inc.	Primis Financial Corp.	Delhi Bank Corp.
National Bankshares, Inc.	Susquehanna Community Financial, Inc.	Idaho First Bank	Consumers Bancorp, Inc.
Farmers & Merchants Bancorp, Inc.	First Bancorp Inc., Lebanon	Savi Financial Corporation, Inc.	Enterprise Financial Services Corp
SB Financial Group, Inc.	Glen Burnie Bancorp	Bank of San Francisco	American River Bankshares
Camden National Corporation	Glacier Bancorp, Inc.	Community Bankers Trust Corporation	PSB Holdings, Inc.
Citizens Financial Corp.	Ohio Valley Banc Corp.	Parke Bancorp, Inc.	IBW Financial Corporation
Unity Bancorp, Inc.	South Plains Financial, Inc.	Waterstone Financial, Inc.	First Community Corporation
International Bankshares Corporation	Hawthorn Bankshares, Inc.	Equitable Financial Corp.	Norwood Financial Corp.
Premier Financial Bancorp, Inc.	Pioneer Bancorp, Inc.	Friendly Hills Bank	Calvin B. Taylor Bankshares, Inc.
Northeast Bank	Alerus Financial Corporation	CSB Bancorp Inc.	Western Alliance Bancorporation
Elmira Savings Bank	Uwharrie Capital Corp	Magyar Bancorp, Inc.	Enterprise Bancorp, Inc.
Great Southern Bancorp, Inc.	QCR Holdings, Inc.	Pacific Alliance Bank	The First Bankshares, Inc.
Hingham Institution for Savings	Banner Corporation	Lake Shore Bancorp, Inc.	Shore Bankshares, Inc.
WSFS Financial Corporation	New York Community Bancorp, Inc.	First Internet Bancorp	Meta Financial Group, Inc.
TCF Financial Corporation	NorthWest Indiana Bancorp	Meridian Bancorp, Inc.	Security Federal Corporation
Webster Financial Corporation	Wintrust Financial Corporation	Pinnacle Bank	WVS Financial Corp.
Washington Federal, Inc.	Logansport Financial Corp.	Southern Missouri Bancorp, Inc.	FFD Financial Corporation
Perpetual Federal Savings Bank	Great American Bancorp, Inc.	HMN Financial, Inc.	First Bankshares, Inc.
Premier Financial Corp.	The Southern Banc Company, Inc.	Northeast Indiana Bancorp, Inc.	Flushing Financial Corporation
Landmark Bancorp, Inc.			

i * Above table provides a list of the 553 firms included in the sample. To be in our sample, a firm must be listed and provide financial statements for bank holding companies. The period is January 2020 to November 2020