NEAR EAST UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
BANKING AND FINANCE PROGRAM

BANK CAPITAL ENVIRONMENTAL AND INSTITUTIONAL STABILITY: A CASE STUDY OF TURKISH BANKS

ALI MOHAMMAD SALIH

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I, Ali Mohammad Salih hereby declare that this dissertation entitled ‘bank capital environmental and institutional Stability: a case study of Turkish bankshas been prepared myself under the guidance and supervision of **‘**ASSOC.Prof.Dr.Turgut Tursoy**’** in partial fulfilment of the Near East University, Graduate School of Social Sciences regulations and does not to the best of my knowledge breach and Law of Copyrights and has been tested for plagiarism and a copy of the result can be found in the Thesis.

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ABSTRACT

BANK CAPITAL, ENVIRONMENTAL AND INSTITUTIONAL STABILITY: A CASE STUDY OF TURKISH BANKS

This thesis is an exposition into Turkish banks to study the impact of environmental and institutional stability on bank capital while also exploring the interplay among the three variables. The aim and objective also include understanding factors of risk-bearing by financial institutions and consider its association with the institutional location on regulating capital of commercial banks. The study follows a quantitative approach using variables such as interest rate, inflation rate, and GDP to measure institutional and environmental impact while total assets, liabilities, and liquidity levels of the commercial banks measured the internal positions of these banks. Descriptive and inferential statistics were used and an OLS regression was carried out to understand the nexus amongst the variables. Findings show that the variables of GDP and inflation rate have a 23% impact on the bank capital with both independent variables show in indirect nexus with bank capital. The model of the study submits that total assets has an 300% impact on bank capital revealing that higher assets owned by the bank can increase capital and mitigate the risks and shocks from the economic environment and total liabilities depicts a vice-versa relationship. The recommendations are that commercial banks should improve their assets and reduce their liabilities as much as possible as total asset is found to have a direct positive relationship with bank capital. It is also essential that commercial banks maintain good liquidity levels so as to avoid having a debilitating effect on bank capital. Higher liquidity levels ensure that bank capital is buoyant. Liquidity levels should be monitored closely by the central bank in line with capital requirement conditions of the commercial banks.

Keywords: Bank capital, Institutional stability, Environmental Impact, Gross Domestic Product, Inflation rate

BANK CAPITAL, ENVIRONMENTAL AND INSTITUTIONAL STABILITY: A CASE STUDY OF TURKISH BANKS

Bu tez, çevresel ve kurumsal istikrarın banka sermayesi üzerindeki etkisini incelemek ve aynı zamanda üç değişken arasındaki etkileşimi araştırmak için Türk bankalarına yönelik bir açıklamadır. Amaç ve hedef aynı zamanda finansal kuruluşlar tarafından risk taşıyan faktörleri anlamayı ve ticari bankaların sermayesini düzenleyen kurumsal konumla ilişkisini dikkate almayı içerir. Çalışma, kurumsal ve çevresel etkiyi ölçmek için faiz oranı, enflasyon oranı ve GSYİH gibi değişkenleri kullanan nicel bir yaklaşımı takip ederken, ticari bankaların toplam varlıkları, yükümlülükleri ve likidite seviyeleri, banka sermayesini bağımlı olarak kullanarak bu bankaların iç pozisyonlarını ölçüyor. değişken. Tanımlayıcı ve çıkarımsal istatistikler kullanılmış ve değişkenler arasındaki bağı anlamak için bir OLS regresyonu gerçekleştirilmiştir. Bulgular, Türk merkez bankasının banka sermayesi üzerinde oldukça güçlü bir etkiye sahip olduğunu ve model üzerinde en büyük etkiyi gösterdiğini göstermektedir. Benzer şekilde, toplam varlıklar ve toplam pasifler banka sermayesi üzerinde% 51 kontrol gösterdiğini ortaya koymuştur ki, varlık yönetimi banka sermayesinde% 10'a yükselebilirken, uygun pasif yönetimi, likidite seviyelerinde% 34'lük bir artış göz önüne alındığında banka sermayesinde% 7'lik bir artışa neden olabilir. ticari bankalar. Öneriler Hiper enflasyondan, paranın değeri nedeniyle ticari bankalar için uygun hale getirilmesinden kaçınılmalıdır. İkinci olarak, finansal ve ekonomik hava durumuna bağlı olarak ticari bankalar için likidite seviyeleri ve nakit rezerv gereksinimleri açısından düzenlemeler ve kontroller uygun ve esnek hale getirilmelidir. Nihayetinde, ticari bankalar varlık tabanları üzerinde çalışmalı ve enflasyon ve GSYİH'nın dış şok baskısından hafifletme önlemleri olarak hizmet etmek için yükümlülüklerini en aza indirmelidir.

Anahtar Kelimeler: Banka sermayesi, Kurumsal istikrar, Çevresel Etki, Gayri Safi Yurtiçi Hasıla, Enflasyon oranı

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CHAPTER 1

INTRODUCTION

1.1 Introduction and Background to Study

Unification and financial stability became a necessity in the 80s in the global financial system. The Basel Accord was implemented at first in the late 80s by 1988. Afterward, Basel I was not enough to calculate risk exposures, hneceBasel II was established (Went, 2010). As a result of the international financial crunch in 2008, liquidity changes rose and capital regulation became unyielding. In a continuous search for solutions, Basel III was adopted in 2010 (Thomson, 2001). Minimum capital regulation and liquidity management approaches were launched as a requisite by the financial institutions for soaking up the unforeseen deficit is the utmost goal of the Basel III. According to Basel III regulations, financial institutions and banks require possessing more capital and a higher capital value (Went, 2010).

In line with the global financial crunch, regulation capital prerequisites were to guide against the financial institutions running into a panic. The least capital was requisite for financial institutions created by the regulator in accordance with the Basel directive to decrease financial institutions' risk (Jhunjhunwala and Bavirishetty, 2010). The regulator verifies the least capital requisite by enforcing a number of strict punishments for the violation with the requisites (Jhunjhunwala and Bavirishetty, 2010). The requirement for regulation in respective nations sets the tools in achieving it inline with respect to the standard regulation of the nation. Legal penalties may be direct, indirect and in some cases

combination if the guidelines are violated. With encouragement from financial institutions place their capital at an optimal level. Always, the main capital is different from the minimum regulatory requirement, and that which arises if in a case of no control. It is required that financial institutions sustain more capital which is referred to as buffer than the least capital requisite for the prevention of the expense of punishment in violated financial system authorities (Thomson, 2001).

A key aspect of financial institution guidelines is capital requirement standardization. Financial institution capital has two roles; insurance and investment roles. These roles have a major impact on the stability of financial institutions, liquidity, and soundness (Davis, 2016). In a scenario, where bank organization is not capital-buoyant to balance exposure of then the financial institution will shoot up the additional cost of the risk by banks to be shared as liabilities to subscribers(Davis, 2016). A consequence of negative terms of financial achievement. Capital requisites have an influence on operations done by the bank which includes expansion of the banking industry, tactical and reformative decisions, improve rivalry in the banking industry, assets and liability structure, minimization of risks, required productivity, investors risk management among other rationales(Went, 2010).

1.2 Problem Statement

A lot of debates have been going about prospects and efficiency of capital regulation in association with investment choices since the Basel I Capital Accord in 1988. The increase in capital proportion may add up to the riskier portfolio of assets by the financial institutions (Tamura, 2005). By boosting risk exposure financial institutions may react to regulatory capital (Tamura, 2005). There is a probability that a portfolio that would be selected might have higher profit coming with more risk.

In the European countries, the Basel II accord was in use and so many financial institutions in the region have given details of their capital

regulation according to Basel III. Lots of nations in Asia adopted the previous accord. For instance, in Singapore, it was established in 2008, while in 2009, India kicked join and Bangladesh aligned in the year 2010 (Ojo, 2017). As the transformation in capital regulation may directly or undesirably influence the risk and achievement, the association between risk, regulatory capital, and achievement became a challenge to deal with (Ojo, 2017). But, observational study on this part is not much, especially in Asia. It was later realized that some nations including the Philippines and Singapore were boosting their capital requisites. Likewise, some other economies of Asia like South Korea have reduced their capital requisites making it easier after their Economic crunch with Japan. On the other hand, South Korea, Thailand, Malaysia, and Singapore have made available watchdogs with more authority. It is also discovered that the authority of the watchdog is proved abortive banks' steadiness and achievements. To strengthen the control of financial institutions, some economies in the Asian region have enlarged the fragility in the banking system (Davis, 2016).

1.3 Research Aim

In this research, the researcher wants to shed importance on risk-bearing by financial institutions and consider its association with the institutional location and capital regulation. Till this moment, scanty studies that take into account the variables of bank capital, institutional stability environmental impact. To our understanding, this is one of the few pioneering research works on Iraq on institutional environment, performance in the banking sector, and regulatory capital.

1.4 Research Objectives

After studying the topics from the view of literature, the researcher intends to achieve the following objective

- To empirically investigate the relationship if there is, of banking capital, environmental stability, and institutional regulation.

- To know the impact institutional guidelines and environmental stability has on bank capital.

1.5 Research Questions

Is there any link between bank financial capital and institutional regulation?

Is there any link between bank financial capital and environmental stability?

1.6 Hypothesis of the Study

Hypothesis I

Ho: there is no nexus between bank financial capital and institutional regulation

H1: there is a nexus between bank financial capital and institutional regulation

Hypothesis II

Ho: there is a no nexus between bank financial capital and environmental stability

H1: there is a nexus between bank financial capital and environmental stability

1.7 Methodology

The approach to be taken in terms of the methodology is quantitative analysis. This will enable the researcher to test the theories in the literature section with an empirical investigation of the variables. The population sample will be a pool of Turkish banks. The data variable will include GDP, inflation rate, interest rate, capital base, asset base, and liquidity reserve requirements. An OLS regression will be carried out to study the relationship and the degree of impact the independent variable has on the dependent variables.

1.8Significance of the Study

This research effort is channelled to enhance the study in so many aspects. Firstly, Juxtaposing with the former studies that are based on American and European banking system together with some studies on Asia, it will observational research on Iraq. Secondly, former researches solely centered on the nexus between capital and performance, some of them have centered on the relationship between risk and capital. This research puts into consideration three factors including performance, institutional regulation, and environmental effects concurrently. The researcher employed some new factors macroeconomic indices and internal control factors as control factors that have been exempted from previous studies.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The effectiveness of capital regulation in drawing out decisions as regards capital framework and risk-bearing has been inclusive in hypothetical &observational research. The process outline by which capital control influences financial institutions' effectiveness, bring down the possibility of succeeding can be demonstrated with these studies concisely.

2.2 Bank capital and its features

Sustained income and monies from the stock market are the foremost part of a banks' capital. This functions as a funding instrument by shielding against a deficit that can endanger bank liquidation. On the contrary, financial institution capital serves as a shielding instrument and provides encouragement for a cautious administration as in a situation where liquidation is imminent, investor resources are endangered. Not only in the microeconomic stage is banking capital essential, but individual banking insurance is essential also but in the macroeconomic stage, banking system insurance is needed. Many of its activities are financed through deposits and various forms of loans that need to be offset. A properly-structured financial institution, In spite of experiencing loss at some certain period of time and lowering of starting capital, will still sustain with a positive balance in the sight of liquidation.

Two other essential features of capital needed to be stated. Firstly, financial institution capital differs from financial institution obligation which is not temporary. As long as the financial institution's operation is

in continuation, there's no commitment to refund the starting capital to the shareholders. These are the final people to be settled after commitment to depositors is sorted-out. More so, allocations to main shareholders are not compulsory and mostly vary according to the profit gained by the financial institution. Furthermore, in the long-period, they anticipate more income compared to investors on debt securities. Capital can be meant in 3 major concepts, the capital associated with the physical capital and in the balance sheet which is known as the base capital, which is represented long-period debts and equity. It's calculated as a result of the proportion of equity to entire assets which is a capital percentage, risk-weighted capital or regulatory capital, or. It's the amount of capital stated in policies of regulatory agencies.

2.3 Theoretical Assertions

Theoretical analysis was deduced from the Modigliani-Miller theorem, portfolio models, and the managerial moral hazard approach. This assisted in bringing more light on aspects pertinent to bank capital, environmental, and institutional steadiness in Turkey.

2.3.1 The Modigliani-Miller theorem On Capital

Pertaining to the 1958 theory of Modigliani and Miller on the firm's earning capacity and asset risk suppresses its market worth(Barges, 1965). The way it chooses to distribute dividends or the way the firm finances its investment is independent of the market value. The fundamental thought to this model is that it does not show any variation if the investment of a company is funded through equity of debt. This is applied in cases of total monetary markets and perfectly knowledgeable depositors on financial institution's risk to unsuccessfulness.

Hence, the involvement of Modigliani and Miller, Investigators have been aware of how to arrive at a best favorable capital formation by making inferences by diverging from the non-moving globe that they supposed in their approach(Aboura and Lepinette, 2015). Investigators began to

learn the function of capital control in a non-complete market situation. Financial institutions run like a conglomerate. In the sense that investors' liabilities are confined to their ventures, stakeholders' shortfall is little whilst all value over the quantity indebted to depositors belongs to them. It's due to such reason that financial institutions desire is not safe to store up investments. More so, in the sight of completely knowledgeable depositors about financial institutions' strategy on investments, they are going to declare interest percentages according to the financial institution's risk stage(Aboura and Lepinette, 2015).

Share worth is taken at a full advantage by the shareholders. Owing to the unfeasibility of utilizing their regulating authority, the goal of utilizing stake worth results equal to the financial institution's overall worth finally (Barges, 1965). Therefore, the portfolio picked is in charge of utilizing the worth and the capital framework bears a negative effect on the financial institution's market worth. During the course, there's not going to be any need for control since banks would pick high-risk degrees.

2.3.2 Information advantages and moral hazard

In the approach of the theorem of Modigliani-Milleron market completeness with zero-disagreement, financial institutions have no exemption. Information views on monitors are more essential for a financial institution. On this ground, depositors can't carry out calculations of a bank's risk. They don't possess the knowledge required and this knowledge advantage develops moral hazard(Papanastasiou, 2017). The agency theory stressed the disagreement of interest amongst various bodies of contractors, managerial agents and principals, equity proprietors, and stakeholders. Ever since the influential effort, a huge study could be reached as per the details provided to these sorts of disagreements of interests and the style which could be used in resolving them. Pertaining to the agency relationship that can be said to be an agreement amongst the agent and the principal, the overall price of not succeeding in reaching the objectives is held by the administrators whilst they possess dividend fictionally.

It is described that the agency association is the binding association between single or multiple bodies (the principal) coupled with some other body (the agent) to deliver on their behalf some service which includes dishing out some managerial rights to the agent(Jensen and Meckling, 1998). If both bodies in the relationship are driven towards utility maximization, there's a right cause to know the agent wouldn't usually take actions to take sides with the principal." Applying the expression of utility, it's stated that people might labor and/or to boost non-financial operations that'll act as the enhancement of utility(Jensen and Meckling, 1998).

The ethical risk is existent based on deposit insurance with complete coverage. Typical of deposit insurance doesn't show the asset risk and in this manner, financial institutions bear the enticement in raising risk high in their portfolio. DeLong and Saunders, (2011) have explained how fixed-rate insurance motivates risk-bearing by financial institutions while some writers have understood moral endangerment owing to insured depositors. The worst consequence-based on robot financial institutions. Studies dispute on an encouraging impact which capital control could bear on the lessening of moral endangerment because of the constant rate insurance deposit.

In reducing the possibility of not succeeding in this scenario (fix-rate insurance deposit) asset portfolio control needs to be related to capital requisites. Although there are so many oppositions to this. Kauko, (2014)Discovered that in the state-preference and option pricing design and insurance deposit, the enticement to boost risk and control depends on the degree of control and risk. Extra stringent capital control would bring down moral endangerment and the possibility of the financial institutions not succeeding would follow suit.

2.3.3 Moral hazard in Firms

Financial institution's operations are carried out in line with stakeholders' choices via the assumption that stakeholders regulate the financial

institution or administrators and their interest is represented. Nevertheless, even though they are of the same interests, managers and stakeholders differ. Kauko, (2014)described the relationship linking risk-bearing and the framework of ownership. It was realized that administrator-controlled financial institutions observe lesser risk-taking behaviors than shareholder-controlled banks.

The ownership framework has much danger. Financial institutions in times of non-intervention and in the time of intervention by the government. Peiss, (2015) connect the affiliation linking administrator ownership and financial institution risk-bearing attitude and the hired price of financial institutions. They discovered it was encouraging at lesser hire price in times of government intervention and not encouraging at times of government re-intervention. Disagreeing on the administrator moral endangerment inside a financial institution with the absence of information on stakeholders, they rely on the provision of some other financial institution, the controller, to carry on with the regulation. In a situation whereby a financial institution's solvency goes low to some stages, capital control provides assistance to a high financial institution administrative framework. During situations where they fall beneath capital requisites, the solvency requisites will shoot up. To evade this, administrators bear the encouragement to supervise the assets and by doing that, they evade the probability of lessening portfolio endangerment. With this, it shows that capital requisites affect the lowering of default risk.

2.3.4 Portfolio models

In the course of its running, financial institutions target to attain utilization of the framework of von Neumann-Morgenstern. This model shows a narration of choices that a risk-reluctant owner o administrator possesses and it also shows the financial institution's aim. Markowitz Harry dealt on a classical mean-variance model to tackle the predicament: the opposed aim of increased yield aside and reduced endangerment on another side (Nakamura, 2015). Satisfactorily, this

design was universal for a one-stage structure and was easily used for a conceptual breakdown.

Kim and Santomero, (1988) described the outcome of a straight capital control as the affiliation which exists linking the stages of requisite capital and deficit in anticipated outcome is favourable. Due to these deficits, financial institutions possess the enticement to spend on elevated endangered assets. The rise in risk bearing linked to this modification on the possibility of not succeeding is linked to the level of risk unwillingness. They discovered that it is not achievable to lower the possibility of not succeeding only by the application of capital requirements (Kim And Santomero, 1988). Capital control has to be mixed with asset control.

2.4 Impact of bank capital on financial stability

The major disagreement which arises before Basel III is associated with the part that financial institution capital plays on monetary steadiness (Fabi, Laviola and Marullo Reedtz, 2005). Financial stability is engendered by b loss due to default and the possibility of banks' panic.

By lessening the possibility of the first effect and minimizing deficit in the other effect, business steadiness would be improved. Capital control spreads its results to business steadiness via lessening of bank’s risk-bearing incentives and elevating capital (Fabi, Laviola and Marullo Reedtz, 2005). Due to an outcome of information irregularities amongst financial institution stakeholders and financial institution depositors and alternatively as an outcome of little liabilities for stakeholders and monetary security net for financial institution depositors, risk-bearing is supported (Papanastasiou, 2017). This encouragement is lessened by the limitations on capital requisites. Ojo (2017), when making use of a design consisting of two means of moral endangerment, discovers an encouraging influence of capital control on financial institution’s steadiness.

The impact of capital control on the financial institution’s steadiness is learnt too in the larger economic terms. The purpose of this research is driven towards a larger economic influence of huge capital requisites. With respect to Fabi, a Laviola and Marullo Reedtz (2005) capital requisite affects the rate and the amount of general crunch. It’s gotten via assist which capital requisites provide in lessening general risk-bearing. According to the paper made up in the past, outcomes that hug capital requisites enhance financial institution’s stability and lessen the amount and rate of systematic crunch. More so, there are conflicting arguments to these ending remarks. It may be the outcome of increased financial institution’s enticement to risk-bearing provided that thorough capital control is used.

Looking at the structure of profitability, huge capital requisites turn out lesser profits, which lessen financial institution’s contract worth which is known as the net current worth of financial institutions' potential returns(Jarrow, 2018). Shielding of contract worth offers a risk-limiting enticement to financial institutions. According to another framework, the connection between franchise worth and the business bear is negative. The boosting on risk-bearing enticement undervalues the impact of capital control.

The conflicting assumption can be seen in experimental studies. There are assumptions that go in line with the theory of lowering capital and asset risk due to capital control and assumptions that vary from it(Jarrow, 2018). Linked to the association between financial institution capital quantity plus hazardous financial institution assets, most experimental proofs assume that boosted bank capital lowers its hazardous assets (Kowalik, 2012). Another study discovers a healthy connection between leverage and equity risk. James (2016) worked on systemic risk experience and discovered that a financial institution’s experience to systemic risk is lowered by raised capital. At the same endnote, while applying the Capital Asset Pricing Model to calculate the

relationship linking leverage and levered beta. In line with the finding, huge capital lowers the possibility of a financial institution crunch (Kowalik, 2012).

A lot of experimental proofs according to the structure of capital requisites influence on financial institution risk-bearing. Studies also looked into markers for financial institutions running in emerging up and coming nations. Both types of research gave a positive influence on capital controls on asset risk and capital of financial institutions (Barrieu and Ravanelli, 2014). They realized that the connection is stronger in situations of low capitalized or riskier financial institutions. In spite, many researches on this problem fetch differing endnotes. They account for a weak relationship between capital requisites and financial institutions' risk. In short, hypothetical and experimental research on the influence that stringent capital requisites have on risk-bearing, both types of research do not arrive at an end conclusion.

In the structure of monetary consistency, it will be based on the hazard distribution function. The loss-retaining function which plays a principal role of capital play (Barrieu and Ravanelli, 2014). Capital gives room for a buffer to cover any deficit (Barrieu and Ravanelli, 2014). A high standard of capital makes financial institutions soak up losses arising from bad debts on loans and from cases where assets are divided or totally repossessed. By examining less capitalized financial institutions and more capitalized banks for their approach towards borrowing money, results prove that lending reduction is more practiced in undercapitalized financial institutions (Barrieu and Ravanelli, 2014).

Lown and Peristiani, (1996) established a constructive association between loan increase and financial institution’s capital percentage in equally state level and individual banks level. Although measuring supply variables set behind the credit hold back in Japan in the 90s, discovered as such the lack of bank capital.

In line with this paper, there is an encouraging association between bank loans and controlling capital. Haubrich and Wachtel (1993) calculate, mainly on capital requisites of the Basel agreement, moving in every asset class along with alternate outcomes discovered that financial institutions possessing less-capital percentage will be moving upward risk-based assets including lesser risk-based.

Two researchers formulated that tightening of credit distribution for two years up till the late ’20s, which is associated with the lowered financial institution capitalization along with limited liquidity (Albertazzi and Marchetti 2010). Studies purport that financial institution capital served a guarding function: Financial institutions with a lesser percentage that was vulnerable to the financial market upsets exhibited a diminished on distributing credit than other financial institutions. All papers recognized in this portion denote that the increase in the capital the more steady the availability of credit.

Hardane investigated how Gross domestic product (GDP) shock affects loans(Haldane, 2018). Financial institutions’ loaning practice has been examined reliant on their degree of capitalization. They made use of information from Italian financial institutions, for nine years until 2001, and learnt that huge-capitalized financial institutions can more withstand temporary tough monetary circumstances pertinent to the borrowers with maintaining longer lending relation. At times of financial distress, outcomes look-alike in the case of higher-capitalized financial institutions. Bank loan distribution varies in line with the bank’s asset volume and capital leverage percentage (Rhee, 2016). Highly capitalized financial institutions can shield their loaning since they have an effortless right to uninsured finance. A situation whereby financial institutions that possess lesser capital, the depressing influence of financial distress (Hugh interest percentages) upon rendering loan is high.

Deryugina et al., (2015) proves that supply and demand loans are impacted through finance policies coupled with the national condition.

Extending more, approval of the loan is considerably lowered by financial institutions that have lesser capital. Financial institution capital affects the financial steadiness and its capability to sustain in times of financial crunch. Next to researches that back such function of bank capital on financial steadiness, some researches reach a varying conclusion for financial institutions of developed economies during the year 2008 crunch. A study centered on OECD facts and figures discovered a negative link among financial institution capital of financial institutions prior to the crunch and its achievement at times of crunch(Nakamura, 2015). In this means, it can't be stated an exact conclusion if bank capital will at all times enlarge financial steadiness.

2.5 Relationship between risk and capital regulation

The controlling capital requisites hinder the financial institutions' risk-bearing to shield financial institutions from the risk of liquidity (Tanda, 2015). During the cause of the consequences of directory laws dictated by the controller, investigation of the link among capital control and risk is said one of several cogent matters of lately (Lee & Hsieh, 2013). A broad narrative examination of the association linking risk and capital control. From the examination, it is seen that almost all of the researches are carried out on financial institutions of advanced economies.

It is thought that increased capital requisites will possess a constructive effect on the risk of the business sector but experimental outcomes are mixed. Flip side, several research concludes a disapproving association linking risk and capital (Al Refai, 2009)

Considering anon-capitalized financial institutions, an insurance deposit add-on persuades the financial institution to bear more risk. Hussain and Hassan (2005) prove that control can't rise up the capital satisfactory ratio of financial institutions in the advanced economies but such controls lessen the portfolio risk. In formulating along with applying

control directives, awareness has to be drawn towards authorized, environmental, firms, social standards of advanced economies.

Considering less-capitalized financial institutions, Iwatsubo (2007) formulates that capital acceptable requisites can't stop financial institutions in risk-bearing. This is due to the fact that; financial institutions give out more minor debts in meeting their requisites of capital. Laeven and Levine (2009) prove that, through the relative authority of shareholders, financial institutions' risk-bearing differs positively. The relationship between bank capital control and risk, limitations on banking operations, and deposit insurance laws are dependent on individual bank's proprietorship framework.

2.6 Relationship between capital regulation and performance

Financial institutions' degree of achievement is regarded as an important factor in the association between risk and capital control (Altunbas et al., 2007; Hughes & Mester, 1998; Lee & Hsieh, 2013). It illustrates a complete paper survey on the association between capital control and performance.

There is a constructive association between capital control and banking performance (Goddard, Molyneux, & Wilson, 2004; Jacques & Nigro, 1997; C.-C. Lee & Hsieh, 2013; Lin et al., 2005; Mbizi, 2012; Samy Ben Naceur&Kandil, 2009; Sami Ben Naceur&Omran, 2011; Pasiouras&Kosmidou, 2007; Rime, 2001).

Asides a constructive relationship between capital control and performance, Zhang et al. (2008), Guidara et al. (2013) discovered no substantial relationship among them. Zhang et al. (2008) formulate that commercial financial institutions, under the limitations of capital, should assign assets and supplement their commerce to boost liquidity and income. Focusing on Canadian financial institutions, Guidara et al. (2013) deduced that there isn't solid proof that modification in capital shield (the variation between the financial institutions' least capital

requisites and capital levels)have an effect the performance calculated by earnings on equity.

Diverse outcomes are as well initiated in the paper, for instance, Goddard et al. (2004) discovered an encouraging association between capital control and performance for European financial institutions for the year 1992-1998. On the other side, Goddard, Liu, Molyneux, and Wilson (2010) Decided a disapproving association that subsists among capital control and performance in financial institutions of European Union (EU) associates economies during the year 1992 to 2007.

A number of researches center on macroeconomic factors and some other factors. For instance, Iannotta, Nocera, and Sironi (2007) formulated that profitability is lesser for joint financial institutions and state-owned financial institutions compared to that of proprietorship financial institutions. Pasiouras and Kosmidou (2007) demonstrate that macroeconomic situations and stock market framework influences the financial institutions' profitability besides the financial institutions' specific features. In accumulation to rise in profitability, elevated capital sufficiency percentage boosts the price of intermediary (Samy Ben Naceur&Kandil, 2009). They stated that there are quite a number of reasons that adds positively to financial institutions' profitability. These reasons are management boost, decrease indirect cost, and increased capital requisites. In calculating if financial control influences the profit effectiveness, Lee and Chih (2013) deduced that the capital sufficiency percentage is significant for minor financial institutions but significant for major financial institutions.

2.7 Relationship between risk and performance

The similarity amid risk and performance is an essential matter in the course of risk assessment of financial institutions. But unexpectedly it is seen that there are so little researches and papers that look into the similarities between risk and performance. A complete creative writing

survey on the similarities among risk and performance structure to examine interrelationships between risk, capitalization, and running effectiveness. They found out that there is a helpful relationship between ineffectiveness and risk-bearing. This outcome buttresses the moral hazard theory, which purports that financial institutions with bad performance are most susceptible to risk-bearing than financial institutions with lofty performance.

Lin et al. (2005) illustrate that there is an unhelpful relationship amid liquidity risk and financial performances. In the survey of the market population, risk-bearing, and financial institution performance from that of economies coming forward, Zhang, Jiang, Qu, and Wang (2013) illustrates that there is a depressing relationship amidst performance and market population. They also suggested that financial institutions with less probability of risk yield better compared to financial institutions with a lofty degree of risk. More so, they came to the conclusion that financial institutions in China and Brazil yield better for more positive institutional infrastructure. As of the above comprehensive narrative, it is sensed that not so many researchers believe the interrelationship amidst risk-bearing, capital control, and performance. For instance: Lin et al. (2005), Guidara et al. (2013), and Lee and Hsieh (2013). In the literature of Lin et al. (2005), they centered on risk-built capital satisfaction, liquidity risk, and financial performance. They made use of OLS design for their investigation.

Guidara et al. (2013) concentrated on Canadian financial institutions and he believed financial institutions' capital shield, risk, and performance. By making use of GMM technique C.-C. Lee and Hsieh (2013) investigated the influence of financial institutions' capital on profitability and risk in the Asian banking sector. We adopt the research of Lee and Hsieh (2013). They made use of mainly two concurrent equations to look into the influence of capital on risk and profitability. In this research, we made use of three concurrent equations to look into the association

between risk-bearing, capital control, and performance. Capital control (risk-centered capital) is made use in place of equity capital that is applied in their research. Three optional measures of risk are regarded in this research. We regard capital market growth and financial institution sector growth as independent variables, which are rejected in their research.

2.8 Review of Empirical literature

Capital influences the financial institution's risk as also an addition to financial sector risk as an entity. Economic suppositions proffer various opinions on the effect of capital on risk. An essential objective of stern capital controls is to make sure that financial institutions maintain unforeseen deficit whilst still welcoming deposit pull-outs and other responsibilities. Dependable on this disagreement, a lot of hypothetical studies stress the function of monetary capital as a shield in retaining earnings and disequilibrium lessening risks in liquidity (Sarmiento, 2018). An additional ground on which capital shows to have a regulating impact offered as an inducement to financial institution proprietors to enhance management of risk and limit too much of risk-bearing specifically, enhance capitalization gives room for borrower selection and risk controlling, in this way reducing financial institution risk (Loebnitz and Roorda, 2011).

Former hypothetical studies underline the function of moral hazard in business venturing and choice of lending. Many of the papers portray that huge capitalization which guides financial institutions to pick lesser hazardous portfolios because risk-moving incentives are not much at huge levels of capitalization (Gong, Huizinga and Laeven, 2017). Readily available theoretical disagreement suggests that huge capital may in place reduce each bank's stabilization. Illustratively, Anginer, Demirgüç-Kunt, and Mare, (2018) Disagree that huge capital may direct to risk in high portfolios, advancing to a greater tendency of crisis.

Anginer, Demirgüç-Kunt, and Mare, (2018) Supposes that capital's influence in lessening moral hazard enticement is paid off by the price of lower efforts applied by people whose ownership is not concentrated at a greater magnitude of capital.

Bessler and Kurmann, (2014) Suppose a U-formed association amidst financial risk and institution capital. At a lower degree of capital, financial institutions pick many risky portfolios to make exploit alternative worth of insured deposits. Nonetheless, as capitalization goes up and long term liquidity goes not likely, all these risk-bearing enticements are lessened due to less profit from rising up asset risk. In the end, at many elevated degrees of capitalization, bankruptcy turns out to be so distant that supplementary capital elevates risk-bearing due to the fact that financial institutions desire gains in that advantage. With respect to universal risk, rising capital percentages could counterbalance an economy's susceptibility to macroeconomic disequilibrium(Balasubramanyan, 2014). Financial institution capitals can also lessen communicable defaults by offering a shield against national and monetary shocks. Separate financial institution upsets can spread to other financial institutions via the financial market (Eross, Urquhart and Wolfe, 2016). Financial institution capital is protected from these upsets, violating the sequential response prompted from each bank's unsuccessfulness. Going forward, each bank's capital law can influence the equity worth and risk of evasion for other financial institutions. A discouraging reaction occurs when a private balance brings forward too much profit and ineffective recapitalization correlating to the effective law that exploits the whole banking sector equity (Flannery, 2013). Related bank violations can mete out huge social prices that aren't totally domesticated and in the occurrence of inherent assurance, equilibrium can occur with a varying influence of risk on capital (Acharya et al., 2016). However, enhancing financial institution control through a rise in (uninsured) money owing can restore moral hazard resistance since it brings down inefficient loan control (Lin, 2012); on the other side, an

improvement in financial institution capital reduces asset-swapping moral hazard created by financial institutions spending immoderately on risky schemes (Weston and Yimfor, 2018), so it diminishes general risk as asset swapping at financial institutions are usually linked.

Financial institution capital may possess varied effects on general steadiness depending on a particular policy atmosphere. Particularly, banking structure enables private market obedience and regulatory atmosphere which enhances information clarity and fewer information slopes can replace for capital in controlling general risk-bearing. The power of market control or enticement is to watch financial institutions risk-bearing activities, which can lead to financial institutions retaining huge capital buffers against unpleasant results in a risk of portfolio(Daher, Masih, and Ibrahim, 2015) which promotes financial institution steadiness. Equally, ineffective market monitoring by depositors may create an avenue for financial institutions to bring down capital kept and to loan to riskier borrowers (Mosko and Bozdo, 2015), By so doing worsening moral hazard in credit mediation resulting to many often financial institution unsuccessfulness. Fully capitalized financial institutions offer market liquidity that always alternate for a poor regulatory reaction at times of difficulty. Comparably, capital can loosen the strings of communicable movement as a result of information slope. Capital could thereby add more to general steadiness in economies with the inadequate regulatory atmosphere that does not provide private controlling and enhance precise information revelation, or improve enticement for private representatives to exercise business monitoring (Decampset al., 2004).

This research is also associated with a lot of the latest experimental research. (Sree Rama Murthy, 2015), measuring the function of financial institution capital, volume, financing, and operations describing general risk in the year 2007–2009 monetary crunch. The researcher discovers that general risk is constructive and substantially associated with

financial institution volume and discouragingly linked with financial institution capital. The experiment in this research is narrow to a large number of financial institutions with assets in surplus of ten billion dollars.

Thabet, (2017) probing the effect of each bank's attitude towards general risk. The researchers calculated the insignificant risk adding to the global leading commercial financial institutions and proofs that financial institution capital is a more essential change in the relationship amidst volume and general risk. This exercise doesn't investigate the effect of the financial atmosphere, which is the basis of our piece of writing. This research is also associated with recent experimental research that looks into the effect of capital on stock proceeds of financial institutions at times of crunch occurrences.

Losada, (2010) calculated the gains of huge financial institutions with assets in a surplus of ten billion dollars in over 30 nations across the Gulf countries. The study found out that huge banks with large capital were profit-retaining at the time of crunch. Berger and Olszak, (2014) investigated the effect of capital on each bank risk through monetary crunch and usual periods. Using American banks as an illustration, the study proves that capital enhances the possibility of a continued existence at all periods for smaller financial institutions and that large capital promotes middle class and huge financial institutions basically at times of financial institution crunch.

Making use of an international illustration of financial institutions, Matsubayashi, (2010) Probes if financial institution stock profit responds separately to various forms of capital percentages, and found out that a robust capital stance was related to high performance at times of monetary crunch, especially for huge financial institutions, this association was high when the capital was calculated by the simple leverage percentage instead of the risk-centered percentage. This research adds to the existing papers on capital and general risk by

examining the impact of the bigger corporate atmosphere on the capital and general risk connection. We disagree and experimentally prove that capital can play an alternative role for a poor institutional atmosphere in lessening general risk. Especially, we demonstrate that the influence of capital on general risk is highly thought about for financial institutions situated in countries with less effective personal and state regulation of banks and in nations with a lesser degree of accessible information.

2.9 Overview of Systemic Stability and Institutional Environment of the Turkish Economy

2.9.1 The Brief History of Turkish Banking Sector

For more than 3 decades, Turkey has been ruled by over 20 governmental regimes, while macroeconomic and political unsteadiness turned out to be the main characteristics of the nation. Populist macroeconomic rules, moral hazard crisis, large public sector debts, large real interest ratios, inflated Turkish lira, powerful currency substitution, huge current account debts, unstable short-period foreign capital flows, the unhealthy risk-bearing attitude of financial institutions, unstable national growth, elevated and continued price hike lead to so many reoccurring crunches in the real and monetary sectors in Turkey (Thabet, 2017). In general, financial institution sector activities, and efficiency are linked to the nation’s macro-economic factors. Although, the Turkish financial sector was so much influenced by state economic rules and laws.

Moving further, we will make available short history of the Turkish financial institution sector. At times of Ottomans, there were not too many corporations for financial institutions in the European benchmark. The foremost financial institution in Ottomans was established in the 19th century and Banki Osmani presently known as Ottoman Bank. In 2001 this financial institution invented Garanti Bank which still bears records of the Ottoman Bank. Turkish financial institution sector was founded and controlled with western benchmark considering the

foundation of the Turkish Republic (CBT, 2017). In spite of the minute capital shape of the private sector, they were owned generally by the state and thereby turned out to be the major funding source for modern investments in the old Republic. Not until 1980 the financial institution sector was massively domineered by state-owned financial institutions. There are usually permanent interest ratios for deposits that are controlled by the state government.

They brought down the deposits in financial institutions because of a hike in price and not encouraging genuine interest percentages. The modern fiscal and monetary agenda of the Ozal administration removed regulations in the monetary system and brought about sovereignty to financial institutions for interest percentage. The interbank market system turned out to be the major trading marketplace for financial institutions and they were granted permission to set up genuine interest percentages in the financial sector. This was an enticement for customers to put in their savings to financial institutions instead of other financial businesses. A rise in the rate of the deposit has lured financial institutions to assist new businesses by creating new credit means. The dividend of government-financed financial institutions was very lofty in the Turkish financial sector till the 1990's Zhao, (2017)Following the removal of regulation in the financial sector privately owned financial institutions were keen on multiplying their shares in the sector. In the previous decade, there was a remarkable development in the shares of the private sector in the financial system. The net influence of both regulations had deteriorated as at the year1994 and 2001 financial sector crunch.

The Larrain, (2011) challenges that because of the rise in public sector loaning rate there was a boost in the need for lesser risky Treasury bonds. Together with a highly poor taxation method and less tax income, government financing mainly depends upon Treasury Bonds. So therefore, the financial sector instead is hugely dedicated to the

marketing of government loaned assets then funding private businesses. The rise in the buying and selling of Repurchasing Agreement (REPO) bills caused an unfavorable effect on real sector businesses. This is known to be the massive effect of civic debt which in turn, unfavorably influenced the private sector businesses at the time of the crunch. The rise in the interest percentage of the treasury bonds in Turkey was fascinating to foreign qualified traders for possessing Turkish bonds in their portfolios (Zhao, 2017). In many of the western economies profits on monetary instruments were so less in comparison to that of Turkey before 1994 and the year 2001 crunch, so there was a large need for those bonds. The financial institutions with fewer trade rates and demand were soured in turn. Certainly, that sequence of joy was dependent on short period capital inflow from overseas and it would depart from the nation in whichever default crisis in the monetary sector. Particularly after the year 2001 crunch both misconducts of financial institutions and not maintaining elevated interest percentage affected the Turkish banking sector very badly and many of the financial institutions turned out to be insolvent in a few days (Zhao, 2017). Owing to the large numbers of withholding group financial institutions, the hitch spread to other financial institutions and this lead to a downfall in the whole financial sector. In the meantime, financial institutions were pressurized by elevated exchange percentages which in return lead to high-level price hike and bad macro-economic achievement for the Turkish financial system.

The supposed hot-money method, which was focused mainly on exterior open positions of Turkish financial institutions, formed a deep currency and banking crunch in the early year of 1994 Since it turned out that this mechanism was not maintainable any longer (Zhao, 2017). The 1994 monetary crunch caused a lesser credit ranking in Turkey and an overall distrust about the nation’s financial system, for this reason, most little financial institutions had it hard to generate money overseas. As a result

of this, they were compelled to raise high their sub-divisional reach in order to amass much deposit (Tavakoli, McMillan and McKnight, 2014).

Kunieda and Shibata, (2014) also mentioned that the year 1994 economic crunch was managed lackadaisically, and subsequently joint authorities instead choose to go along with the populist financial policies instead of using drastic financial policies to heal macroeconomic instability. Obviously, we can disagree that bad management of the 1994 crunch resulted in a harsher 2001 economic crunch which had serious essential implications on the Turkish financial economy.

The Zhao, (2017) accounts that prior to the 2001 economic crunch the effectiveness of financial institutions was much less in Turkey. At hand are some researches that look to discover the effectiveness of financial institutions with respect to their magnitude. Before 2000, the most efficient financial group was known to be the middle-scale financial institution, the financial institutions mostly bought by international financial institutions, next to small financial institutions. The lowest effective financial group is the large financial institutions. This has drastically transformed after the crunch of international financial institutions and they became much more effective and grounded in contrast with domestic financial institutions. With respect to Alber, (2013), it is more encouraging than international financial institutions were the foremost agents that traveled from nations which depict their risk hesitant attitude for Turkey at the time of crunch.

At the time of the crunch, incumbent authorities were implored to go in line with the IMF, written down proof of payments was issued to the Turkish economy. Famously known, IMF acknowledgments were not centered on the total utilization of resources instead of possessing balancing effects. So the Turkish financial sector lost its standard subsequent to the crunch. The influence of the post-2001 crunch would be talked about in the following chapter.

2.9.2 Turkish Banking Sector after 2001 Economic Crisis

The influence of the year 2001 economic crunch spread over from the financial sector to the overall economy particularly the manufacturing sector. So therefore, the government was forced to use essential means to manage the crunch. At this level, some fresh governmental groups rearranged to supervise the financial sector of Turkey. In December 1999, a non-dependent Banking Regulation and Supervision Agency (BRSA) was invented (Schoenmaker, 2018).

After the year 2001 crunch, the groups were strongly engrossed in financial institutions' operations. Sequel to the financial and legal tender crunch in February 2001, the government started up a thorough financial Sector Retransformation and Regeneration scheme, which was focused on powering the private financial institutions, declaration of the financial institutions were handed over to the state by processes, such as merger, acquisition and liquidation, operational and monetary reorganization of state financial institutions with the final objective of privatization, and growing the legal and institutional structure, which will enhance control and checks in the sector and the sector and drive for more effectiveness and competition (Schoenmaker, 2018). Following the 2002 voting in of the authorities liked to drive regulating policy for the Turkish financial system which was visibly designed by the previous minister of economy Kemal Derviş. The government has finished a full re-examination of the financial institution act to drive the legal structure more closely with regards to the EU benchmark. At the end of the year 2004, the EU concluded to begin agreement discussion with Turkey on 3rd October 2005.

At the time of the agreement negotiations, which almost lasted for more than ten years, Turkey will achieve substantial economic and structural improvement before bonding with the EU. Following the crunch financial sector made arrived at encouraging advancements. Inside this section, we would mention how financial institutions are influenced by economic transformations. Therefore the major outcomes of the year 2001

economic crunch in the Turkish financial sector can be summarized as follows;

2.9.3 Improvement in Capital Adequacy Ratio

Capital Adequacy Ratio depicts the firmness of the financial sector to exterior upsets and exposes the survival of financial institutions in the possibility of evasion. The less risk of credits and quality portfolio of assets improve Capital Adequacy. Regarding the Banking Regulations and Supervision Agency which decreed that percentage must be at least 12% for Turkish financial institutions. This percentage was 19% for the year 2010 and it rose above the benchmark set by Banking Regulations and Supervision Agency (Jarrow, 2013). This denotes that they are tolerating very less risk in their financial activities. In comparison to most western financial institutions CAR is very high and exposes the strength of Turkish financial institutions.

2.9.9 High Profitability

The financial sector in western economies bears low-profit percentage. While economic development became stable and market saturation was concentrated, the profit difference is very low in the advanced world (Ouyang, Zhang, and Dong, 2015). Contradictory after the year 2001, the crunch revenue of Turkish financial institutions became quite high. Due to the fact that most unprofitable financial institutions are kept away from the market, credit evasion risks lessened and international monetary outflows were high. Return on Equity percentage is at least 20% since the year 2002 for the entire sector. The short-period consumer credits and credit card use involved a high percentage of banking activities. That brings increased return on financial institutions' income and much profitability of financial institutions.

2.9.5 Increase in foreign ownership in Turkish banking sector.

Increased profitability and solid monetary balance sheet of Turkish financial institutions made them much beneficial to international procurers. Also, other reasons such as short proximity to Arab and Asian

markets, interrelationship with European markets, and lesser prices of financial institution shares in the Stock Exchange are enticements for procurers (Arzoo, 2010). There are two major forms of international capital inflow to the Turkish financial sector. The first form is that international financial institutions fancy to venture as FDI (foreign direct investment) to the financial sector and possess their personal financial institution and subdivisions (Contessi and De Pace, 2012). They controlling head office overseas and run with the watch of Turkish Republic policies and by policies. The division of those international financial institutions is about 13% in all Turkish financial assets. The subsequent and most fancied means for international financial institutions to run in Turkey is by purchasing stocks of major Turkish financial institutions. In this situation, fractional management of those financial institutions is been controlled by international financial bodies and the board of directors.

2.10 Effects of the global crisis on the banking sector

The financial sector of turkey wasn't touched during the crunch compared to European and American financial institutions, regarding the fact that the financial institutions possess a sound framework upon capital efficiency. The financial institutions of turkey, among the nations in the G-20, which are in the foremost position while talking about efficiency in the capital, equity, and assets profitability. During conditions of efficiency in capital, they have a sound framework (Avci, 2017). Turkish financial System possesses an encouraging worth when talking about loans, deposits to the percentage of GDP, Monetary strength coupled with the percentage of deposits to advances, these are known as the essential markers when talking about the sector of finance. Worldwide toping financial institutions incur plenty of breakdown under the effects of the crunch, whereas Turkish has only experienced the reversed case. Financial institutions running their business in Turkey have been fruitful as the world financial system cannot break out after

going through a 4trn dollars waste during the course of the crunch (Humayun Kabir, 2017). Banking Regulation and Supervision Agency (BRSA), reformed the section subsequent to the year 2001 crunch, and this resulted in a design for several economies. Basically, behind the rather partially discouraging influence upon the financial framework, there's an increased capital adequacy ratio(CAR), a lofty asset grade, less cash and liquidity hazards, all credits to triumphant hazard control with efficient civic watch over, and excellent utilization of the interest, counterparty and maturity hazards (Giuliana, 2017). Steps taken by the Central Bank of the Republic of Turkey (CBRT) and the BRSA in fighting the rise of worldwide monetary hazards helped the financial system to proceed with quality operations (Çamlıca, 2016). The worldwide monetary crunch didn't affect the business framework of the financial system of turkey: The number of subdivisions and human resources maintained its enlargement propensity in spite of the worldwide economic crunch in the year 2007-2009. Turkey's financial institutions have targeted going on with recruiting new staff and start fresh subdivisions in the nearest future. On the other side, liable to the attainment, the tendency of profiting more effectively from information processing innovations and enlarging customer web lasting and undisrupted. In spite of the unpleasant influence of the national crunch, the Capital Adequacy Ratio(CAR) of the financial system of turkey went through no essential breakdown at this time. A solid view of owned-finance denotes the survival of the system. The capital Adequacy Ratio CAR of the financial system sustains its elevated position and it's still high relative to the CAR of the sectors of many advanced and an advancing economy, proposing that when capital is taken into consideration there is no hindrance with respect to the elongation of financial and credit institutions sustain their solid capital framework due to their cautious practices (Çamlıca, 2016).

At a similar period, asset standards made progress steadily. The monetary intermediary role which has serious essence in obtaining a

maintainable macroeconomic development accomplishment needs to be put persistently into exercise. Even though they obtained a steady developing atmosphere brought about speedy credit growth, too much risk-bearing of financial institutions was avoided due to the lawful restrictions and percentages of unrecoverable loans which were rather less even during the times of the crunch.

The controls avoiding the FX (Foreign Currency) loaning of economic pieces with no FX profit avoided that this system assumed open positions and also avoided that the difficulties were encountered by the economies of Eastern Europe and the Middle(Temesvary, 2014). The effect of the bankruptcy compression, which happened in the worldwide monetary markets as a result of depreciation in risk sensitivity and lack of reliance, has dwelled restrictedly on the domestic monetary businesses as well liable to the steps taken by the CBRT (Çamlıca, 2016).

Financial institutions instead were moderate in lending because of high risks as well as the delay in a loan request and the increased request for monies from the Authorities In support, there’s been an elevation in the division of government securities in the entire assets. During the time at which the worldwide growth started to influence the financial sector, the currency hazard of financial institutions stood pretty minute.

The risk of interest was above normal because of a maturity disparity brought about of elongated period assets alongside little period liabilities. But the speedily lowering interest percentages possessed a helpful influence upon the interest gap ((Mozib Lalon, 2017). In the meantime, financial institutions speedily brought about ways to lessen their running expenses. Resulting from the profitability and profit size increase, a development was recorded, although not much. Stakeholders’ equity has consistently strengthened because of the capital increase and the rise in the profit size (Hakim and Naelufar, 2020).

Deposits that forms us utmost financing means of the financial sector, hold back the reliance of the financial sector on much unpredictable wholesale finances. This circumstance and the liquidity adequacy ratios, which appear above the legal requisites, are measured as encouraging growth in times of liquidity risk (Sharma, 2011).

The exchange percentage risk aversion tendency of the financial sector has persisted. Even though the levels of on-balance sheet short position and off-balance sheet long position of the sector went down in accordance with the liquidity situation in the foreign markets, they began to go high again since March 2009 (US, 2015).

The rise in the level of exchange rate unstableness at the time of the worldwide monetary crunch leads to a rise in both risk premiums and susceptibility of the economies where the division of foreign exchange FX loans in total loans is lofty. Evidently, the division of these loans is less in Turkey and they came appeared as one of the most vital features that reduced the impact of the crunch on the financial sector (Nidhiprabha, 2011). Substantial common equity, which newly appeared as a crucial solid marker of capital in the foreign arena, is substantially elevated in the financial sector of Turkey (Nidhiprabha, 2011).

Not long, the substantial advancement attained in the restoration and retransformation of the financial sector had placed Turkey’s regulatory and supervisory structure between the most excellent practices worldwide. This actual power of the financial sector is justifying the risks faced by the worldwide crunch to Turkey (Maxfield and Magaldi de Sousa, 2014). Then again, the discouraging result of the worldwide financial crunch was suffered by the financial sector in Turkey: Not alone did the drop in credit distribution, which was as a result of contraction and so therefore the elevated cost of the financial sector’s foreign funding sources as an effect of the crunch in the worldwide financial market and escorted anxiety due to the rise in faulty credits, but as well the decrease in the need for credit, rooting from the sluggishness of

economic operations, which resulted to a fall in credit size since the last part of the year 2008 (Maxfield and Magaldi de Sousa, 2014).

Resulting from the fact that the financial sector grew sluggish in 2009 due to the growth both domestically and abroad, an increase in the number of subdivisions and staff are known as direct access canals were not much in comparison to the previous years. In the same period of time, the worldwide crunch was efficient in the interest percentage of the loans dished out by financial institutions accredited. Specifically, credit interest percentages rose because interest margin rose too (Hakim and Naelufar, 2020).

Due to the sluggish economic development, the sector dealt with a fall in credit expansion, depreciation in asset standard, and a rise in non-discoverable loan percentage. Loans in the financial sector decelerated since the last period of the year 2008, as the influences of the worldwide crunch became obvious. Financial institutions were beneath the growth level of loans by practicing a wary strategy during the crunch periods (Arzoo, 2010). At the time of the crunch, financial institutions have fancied to measure in the securities portfolio a substantial quota of their receiving deposits. During the first times of the worldwide monetary crunch, the financial system stayed slow because of the lack of monetary assistance to the real sector, but began to rectify the condition in the year 2009 (Arzoo, 2010). A number of financial institutions revoked a percentage of their loan or processed checks prior to the date. On the other side, bad loans increased. Financial institutions in Turkey have turned out to be a difficult place as credit of their cash resources, instead of bankruptcy trouble. Financial institutions were compelled to maintain liquidity for the international currency liquidity and in opposition to the suggestion of interest-sensitive deposits. Separately from this, the most essential difficulty in line with liquidity has been lowered and the liquidity chances made available from overseas.

One more setback in the sector is the non-conformity between the assets and liabilities. The most important risk associated with deposits is brief in terms. Following the September-2008 commenced crunch, one of the difficulties faced by the Turkish financial system has been the development difficulty. At the time of the crunch, sub-divisional swiftness and employee strength of the financial sector were also sluggish. One other major risk in the Turkish financial sector is the value of assets (Arzoo, 2010).

2.11 Global Crisis' Causes of Limited Effects on the Turkish Banking Sector

The worldwide monetary crunch has also bewildered the financial sector in Turkey. Despite this, the influence of the crunch on the Turkish financial Sector stays fairly limited compared to its cohorts in advanced and other advancing economies. Turkish financial sector had been reformed and put up to date with respect to subsequent national crunch in the late year 2000 and early year 2001 (Behistani, özyeşil and Qadir, 2020). Financial institutions with a low monetary framework had been either eradicated or fused into robust financial institutions. In the regulatory structure of the BRSA, the sector had turned out to be more effective and competitive, incited by the rise in foreign direct investment FDI (Önen, Eken and Kale, 2016). Starting a solid officially authorized infrastructure in after crunch times and showing the familiarity of crunch to this structure boosted the strength of the sector next to potential crunch. Modern monetary design built for sustaining the steadiness assisted by structural transformation, it serves as the key feature in shielding national steadiness and the nation to grow to be more elastic and resistant to exterior fluxes at the time of the worldwide crunch.

Subsequent to the crunch in 2001 and the retransformation process, the financial sector demonstrated a quick development performance in the year 2002-2008(Önen, Eken, and Kale, 2016). During this time, the number of subdivisions and employees got better immensely. During this

time, the monetary framework of the sector as well turned out to be stronger, and the risk regulatory systems got better and public management turned out to be more efficient at this time. These encouraging growth witnessed by the financial system in the year 2002 to 2008 period had so many rationales, accepting the associated local and foreign economic situations and the variation in the risk control view. One other important rationale is the accomplishment of the “Banking Sector Restructuring Program (BSRP)” (Kiliç, 2011).

The BSRP, founded in May 2001, centered on the intermediation role and focused at converting into a globally competitive financial sector that will stand strong to the interior and exterior upsets. The main duties of the BSRP were stated as a revival of the weakening caused by the year 2000-2001 crunch in the sector and erecting a solid base for the sector by differentiating it from ineffective financial institutions (Kiliç, 2011). The BSRP aimed at retransforming state-owned financial institutions, declaration of the financial institutions was moved to the Savings Deposit Insurance Fund (SDIF), restoring the private financial system, intensifying the control and managerial structure, and raising effectiveness in the financial sector. Subsequently, the scheme was designed for four main blocks. These blocks are (Önen, Eken and Kale, 2016);

- Reforming of state financial institutions monetarily and operationally,
- Quick resolution of the financial institutions under the SDIF,
- Facilitating a fit framework to private financial institutions that were distressed by the crunch,
- Understanding of legal and business controls will raise the efficiency of inspection and close watch in the financial sector and that will bring about a more efficient and competitive framework to the sector.

Reviving the financial institutions under the authority of SDIF, reforming the state financial institutions out of their monetary and running deficit, reviving the private financial institutions concerned harmfully from the

crunch, knowing the officially permitted and business controls to raise the effectiveness of inspection in the financial sector and make a more efficient and healthily competitive framework in the sector (Gunay and Heves, 2011). Restructuring attempts put into action after the monetary crunch and political steadiness was secured after the year 2002 instigated an obvious revival in the major economic markers. At the time the present Turkish financial Sector is put side by side with its cohorts in other markets with a concentration on factors that brought about and strengthened the crunch, so many important inconsistencies were brought to light (Aylin Erdoğdu, 2015). Compared to its cohorts in advanced markets, retail financing in Turkey still stays below penetration and bears top prospects. As an outcome, financial institutions have concentrated on long-established retail and corporate financing and stayed away from risks determined by sub-prime mortgages and complicated monetary instruments.

- Even though lesser as contrasted with other advancing markets, loan size in Turkey has gone up substantially in current years. Although loan increase was escorted by good deposit financing, this in exchange lessened the susceptibility of financial institutions founded by a large exposure to international financing. Loans/Deposits percentage stood at 70% in Turkey, whereas the same percentage was above 100% in many commercial dealings (Swamy, 2013) More so, loan development was attained with good risk management and cautious lending rules. Subsequently, inactive loan percentages stood comparatively low.
- Wide foreign exchange borrowing had generated substantial risks in other economies while foreign exchange borrowing in Turkey was sustained at moderately low levels.
- Huge capital adequacy percentage well over aimed at the barest minimum of 12% has bolstered Turkish financial institutions' balance sheets in opposition to risks (Yildirim, 2015).

- The sector ran under a high class regulatory and supervisory structure as put together with its cohorts.
- More so, the macroeconomic laws of the Apex Bank were also efficient in easing the upshot of the worldwide economic crunch.

2.12 The Measure Taken by CBRT and BRSA during the Crisis

In reaction to the difficulties in the worldwide credit markets, government and apex financial institutions have engaged in several means to prevent or at least control the unfavorable outcome of the worldwide monetary crunch on their nations and financial sector. In this perspective, a lot of methods were used by the Turkish authorities and organizations to minimize the unfavorable influence of the worldwide monetary crunch on Turkey. Inside this structure, the CBRT used the following measures ((Yildirim, 2015):

- Began its operations as middlemen in the international exchange deposit market until the elimination of doubts in the foreign markets;
- Increased its business deal boundaries by double to USD 10.8 billion and expanded the lending maturity to 1 month from 1 week in the international exchange deposit market(Bejakovic, 2017);
- Made use of a tactic to employ international exchange stored to basically assist the international exchange liquidity demand of the financial system.
- The store requisite percentage was left at 6 percent in TL liabilities, but it was lessened to 9 percent from 11 percent in international exchange liabilities. With this method, the CBRT made available supplementary liquidity of USD 2.5 billion to the financial system (Bejakovic, 2017);
- Boosted the sell abroad rediscount credit bounds by USD 500 million to USD 1 billion in a bid to manage the upshots of the crunch on manufacturing sectors (Degirmen, 2011). In addition, the laid down laws and principles appropriate to the sell abroad

rediscount loan bounds were reorganized for providing the application of these loans effortlessly.

The BRSA used specific methods targeted at sustaining the monetary power of financial institutions and holding up the influence of sudden variations in the monetary asset prices on financial institutions' capital sufficiency. For this aim, the BRSA (Swamy, 2013):

- Mandated financial institutions to get consent for allocation of the year 2008 revenue;
- Permitted financial institutions to regroup the securities in their balance sheet from trading portfolio to investment portfolio for once only;
- Permitted financial institutions to reform the loans obviously posing no difficulty in order to make sure easy functioning of the loan relations between financial institutions and non-financial institutions.

The Government required approval from the legislatures for boosting and determining for the duration of two years the deposit insurance coverage, which was TL 50,000(Kiliç, 2011). CBRT reduced its interest amount and stretched the maturity in the international exchange deposit market so as to avoid a probable international exchange squeeze in the monetary market. Supplementary methods were continuously put to practice by different firms in the year 2009 as the worldwide instability kept on affecting the markets (Nidhiprabha, 2011).

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research design

The research design is the explanation of the process and the flow of the research methods and how the researcher intends to carry out each step of the process. The study follows a quantitative approach while having a deductive method of knowledge finding through statistical means. The study will be using data and information sourced from archives and the databases of banks in Turkey. The statistical process involves both inferential and descriptive statistics.

3.2 Sampling Technique and Population

A non- probability sampling method is chosen and under the non-probability sampling technique, a judgmental or purposive type of sampling method will be used. The justification for this lies in the nature of the research study. The study will be selecting commercial banks amongst all the types of banks present within the Turkish financial system purposefully to study the phenomenon of institutional regulation and economic effects on bank capital. This is because from the sample population the Turkish commercial banks are controlled by the government and also the apex bank authority in Turkey.10 banks within the Turkish commercial banks will be used for the study.

3.3 Data Collection

For the quantitative method and deductive approach of data analysis, secondary sources of data are usually used. In this study, the data source will be bank databases for bank data variables including bank

capital, interest rate, total asset, total liabilities while that of institutional regulation will include liquidity ratio and governmental variables will include gross domestic product and inflation rate.

3.4Sampling methods and Population

The entire population for the study is the commercial banks in Turkey. The rationales for using commercial bank are

the capital is controlled by the depositors

it is institutionally regulated by the policies and guidelines of the central bank

It is affected by the environmental forces of inflation in the economy.

The economic buoyancy and productivity reflected by the GDP fluctuations are another environmental reflection on the banks.

The sampling method used for this study is a probability sampling method of stratified sampling. The entire population is the Turkish banks; it has been further stratified into the commercial banks. A probability sampling of 20 banks within the commercial strata has been chosen for this study. Hence, the commercial banks will be an effective sample for studying the effects of institutional regulation interest rates and environmental stability using the inflation rate and GDP on bank capital.

3.5 Data Analysis

The two methods of quantitative data analysis method will be inferential and descriptive statistics. Trend patterns will also be taken preliminarily to study the history of the variables over time. For inferential statistics, regression analysis using panel data method.. Tests such as normality, stability, unit roots, co-integration test will be drawn from the model to explain further the characters and co-existing relationships of the variables in the model. The descriptive analysis will include the measure of correlation among the variables. The skewness, minimum value, and

maximum value, median, mean, Jacque-Berra, and standard deviation of the data variables. The time frame of observation and analysis will be for 10 years

3.6 Model Specification

The model estimation specifies the dependent variable as well as a number of dependent variables otherwise now as regressors or exogenous variables. The endogenous variable is bank capital denoted by BC, the other independent variables are gross domestic product GDP, interest rate Ir, inflation rate IR, total assets TA, total liabilities while institutional stability is proxied by a dummy variable.

The regression expression below will be used as an estimation model for the study;

$BC = \beta_0 + \beta_1 GDP + \beta_2 IR + \beta_3 Ir + \beta_4 TA + + \beta_5 TL + \mu$..... (1).

To avoid problems of heteroscedasticity, the figures of variables with potential outliers such as Bank Capital, Total Assets, Total Liabilities, and GDP will be logarithmized to ensure consistency with inflation and interest rate figures. Hence, equation 2 of the regression model takes the following equation:

$LBC = \beta_0 + \beta_{1L} GDP + \beta_2 IR + \beta_3 Ir + \beta_{4L} TA + + \beta_{5L} TL + \mu$..... (2).

3.7. Description of variables

Bank capital; this is the dependent variable demonstrating the volume of money or funds used operational base and obligations and serving as a reserve requirement for bank liquidity purposes.

Gross Domestic Product (GDP) is an independent variable showing the total amount of goods and services produced within an economic area over a period of time. This model characterizes the economic buoyancy of the Turkish economic region in which the financial institutions are

based. It will give the researcher a glimpse of the economic influence on financial volatility in the study.

Inflation Rate: this is the general and persistent price increase of goods and services within the Turkish economic area. It is an independent variable in this model and it also measures the influence of the Turkish economy over the banking system.

Interest rate(Ir), an independent variable in the model and it shows the effect of institutional regularization of Turkish banks by the central bank. This rate is the value in percentage that the central bank imposes on long term deposits and loanable funds.

Total Assets Size: this variable shows the entire size and the financial worth of the established banks within the Turkish sector. In this regression model, it is an independent variable describing liquidity levels of the Turkish banks. It is calculated by total equity plus total liabilities equated to total assets.

Total Liabilities are the total of financial and fund obligations and debt to be repaid by the banks at the time to financiers, credit depositors. In this model, it is an independent variable describing liquidity levels of the Turkish banks.

CHAPTER 4

FINDINGS AND DISCUSSION

4.1 Introduction

The previous chapter outlined the variables and the data to be used for this study with a highlight on the research methods to be engaged in analysing the empirical investigation carried out on the phenomenon of bank capital, environmental and institutional stability. This chapter is dedicated to two forms of quantitative analysis. The fist is descriptive statistics and the second part is inferential statistics. In the descriptive statistics, individual and group descriptions of variables will be carried out to understand the trend, the correlation, and the measure of central tendencies of each variable. The second part of inferential statistics will include diagnostic statistics such as normality, regression analysis, and unit root tests.

4.2 Trend Analysis

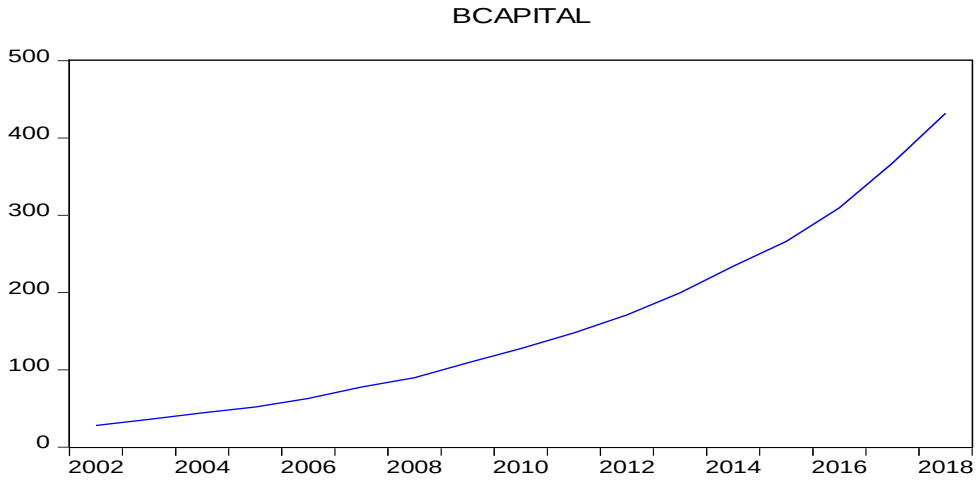

Figure 1 Bank capital of Turkish banks

(Source: Author's computation using Eviews 10)

The above graph shows the trend and the development in the volume of bank capital of Turkish banks over the last 16 years. It was in tens of millions from 2002 to 2008. Afterward, bank capital grew in the hundreds of millions showing the expansion and the monetarybuoyancy in the Turkish banks in recent years. The figure shows the aggregate of capital owned by commercial banks and it demonstrates the capacity of these banks in terms of assets base and liquidity strength before we can evaluate the extended financial base that was added to assets through customer deposits. Evidently, there is a 1424% increase in bank capital from 27.99 to 431.787 million TRY.

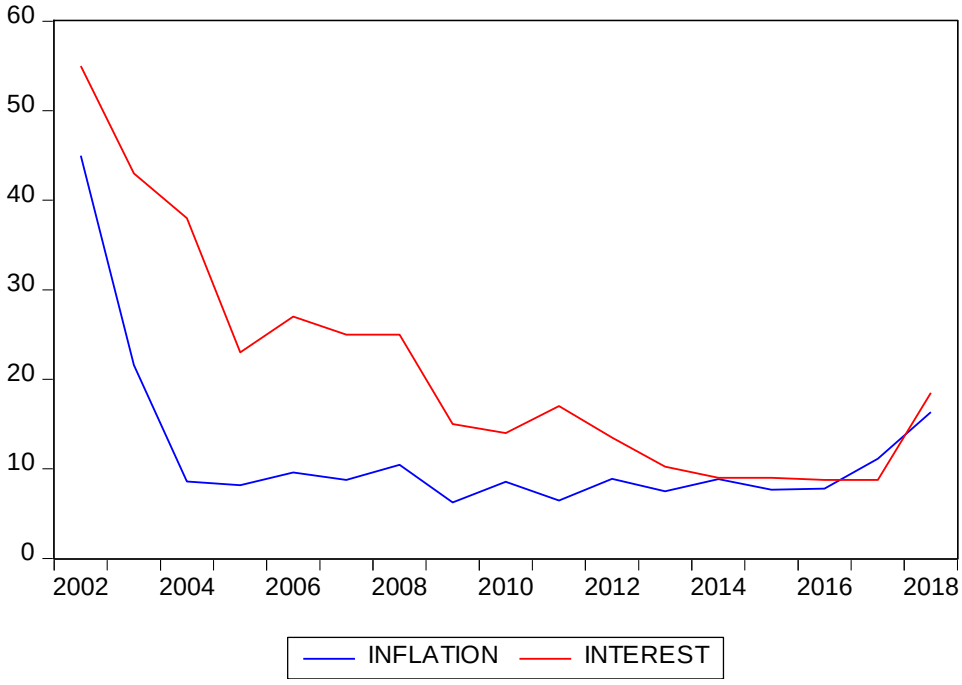

Figure 2 Inflation and interest rates

(Source: Author's computation using Eviews 10)

The above graph shows the trend for inflation and interest rates for the Turkish system in the last 16 years. The inflation variables show the trend of environmental stability while interest rates show the regulation instilled by the institution represented by the central bank. The two trends show a similar pattern of movement with a downward flow from 2002- 2004. It had a rise and fall pattern till 2012 until the two variables

had an upward trend from 2016 till 2018. The inflation in the Turkish economy was as high as 44.96% in 2002 and the lowest value of 6.25% in 2009. The interest rate had the highest value of 55% in 2002 and the least value of 8.75% in 2017 and 2016.

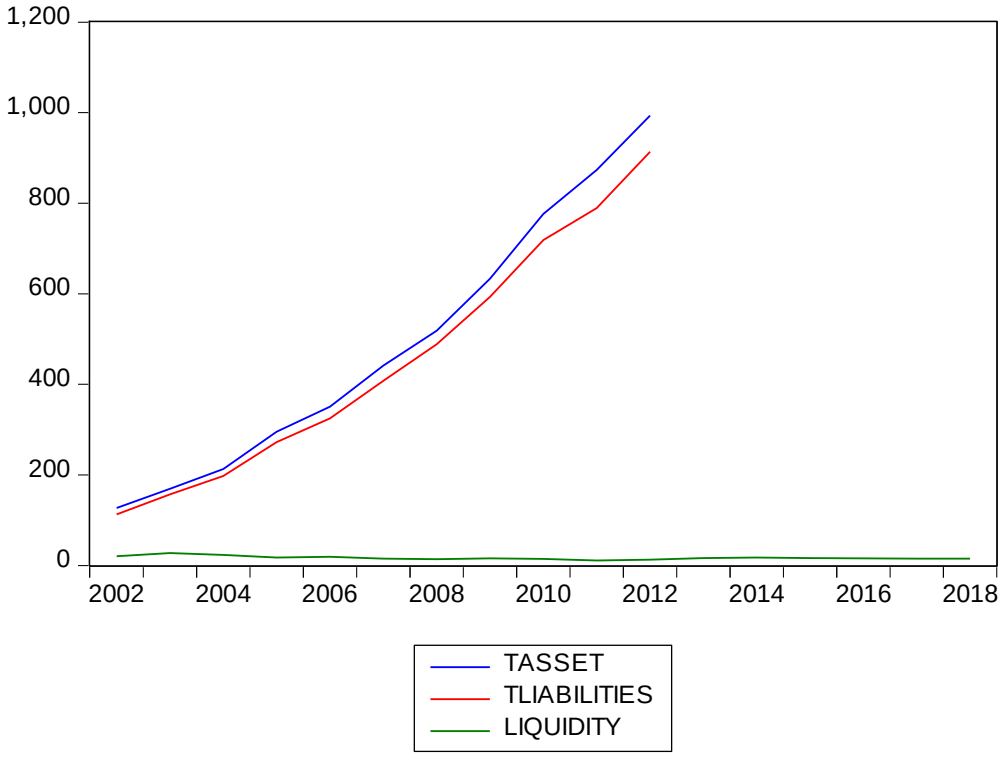

Figure 3 Total assets and total liabilities

(Source: Author's computation using Eviews 10)

The above diagram depicts the trend of total assets and total liabilities associated with the commercial banking system of Turkey for the period of study. The upward trajectory of both the total assets and total liabilities show the expansion and the growth of the banking industry generally. However, the levels of liquidity observed in the same period have been uniform and un-increasing over the 16 year period implying that the level of liquidity has been constant and that can be attributed to the regulatory guidelines set by the institution of finance in the country.

4.3 Descriptive Statistics

Table 1: Descriptive Statistics

	CAPITAL	GDP	INFLATION	INTEREST	LIQUIDITY	TASSET	LIABILITIES
Mean	162.0215	848.4398	11.85765	21.16176	16.80161	490.1695	452.2317
Median	127.583	771.9018	8.76	17	15.86255	441.182	407.771
Maximum	431.878	1240.474	44.96	55	27.11788	993.517	913.275
Minimum	27.999	521.388	6.25	8.75	10.90847	127.054	112.612
Std. Dev.	122.6225	226.8326	9.335448	13.38783	3.936693	295.7642	271.3927
Skewness	0.823736	0.31408	2.891148	1.191786	1.199485	0.396983	0.360453
Kurtosis	2.587274	1.893001	10.61056	3.583964	4.189111	1.848362	1.824747
Jarque-Bera	2.043191	1.147522	64.71021	4.265889	5.078075	0.896799	0.871257
Probability	0.36002	0.563403	0	0.118488	0.078942	0.638649	0.646858
Sum	2754.365	14423.48	201.58	359.75	285.6274	5391.865	4974.549
Sum Sq. Dev.	240580.3	823248.4	1394.41	2867.743	247.9608	874764.5	736539.9
Observations	17	17	17	17	17	11	11

Source: computed by author with Eviews 10

The above table shows the mean, median, highest, lowest values, standard deviation, kurtosis, and skewness of the distribution of data of the variables. The numbers of observations were 17 over the 16 year period.

4.4 Correlation Analysis

Table 2: Correlation Analysis

	BCAPITAL	GDP	INFLATION	INTEREST	LIQUIDITY	TASSET	TLIABILITIES
BCAPITAL	1	0.943953	-0.538384	-0.836918	-0.819142	0.998733	0.998204
GDP	0.943953	1	-0.664981	-0.878115	-0.874219	0.94556	0.945083
INFLATION	-0.538384	-0.664981	1	0.839368	0.45408	-0.545879	-0.553031
INTEREST	-0.836918	-0.878115	0.839368	1	0.773643	-0.85128	-0.857485
LIQUIDITY	-0.819142	-0.874219	0.45408	0.773643	1	-0.833096	-0.832884
TASSET	0.998733	0.94556	-0.545879	-0.85128	-0.833096	1	0.999686
TLIABILITIES	0.998204	0.945083	-0.553031	-0.857485	-0.832884	0.999686	1

Source: computed by author with Eviews 10

Bank Capital being the dependent variable in the above diagram shows correlation at varying degrees with other variables. It shows a strong positive correlation with GDP at 94% and an equally stronger correlation

with total liabilities and total assets at 99% respectively. A weak positive relationship with interest rate and liquidity at 84%and 82% respectively. However, bank capital shows a negatively poor relationship with inflation rate at -54% which implies that if bank capital will go down if inflation rises and will increase when inflation is on the decline. The major independent variables of total assets and total liabilities depicting the controlofthe capital for banks show negative relationship with both interest rate and inflation rates. The inverse relation is mild with inflation rate while above 80% with interest rates.

4.5 Unit Roots Test of Variables

Table 3: Augmented Dickey-Fuller test of Bank Capital

Null Hypothesis: BCAPITAL has a unit root			
Exogenous: Constant			
Lag Length: 0 (Automatic - based on SIC, maxlag=3)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.38487	0.027722
Test critical values:	1% level	-3.92035	
	5% level	-3.06558	
	10% level	-2.67346	

Source: computed by author with Eviews 10

Since, the probability reading of the residual is 0.02 which is less than 5% levels. Hence, null hypothesis is accepted. It is concluded error that bank capital variable has unit root which is presence of non-stationarity.

Table 4: Augmented Dickey-Fuller test of Total Liabilities

Null Hypothesis: TLIABILITIES has a unit root			
Exogenous: Constant			
Lag Length: 1 (Automatic - based on SIC, maxlag=1)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.01742	0.004626
Test critical values:	1% level	-4.42059	
	5% level	-3.25981	
	10% level	-2.77113	

Source: computed by author with Eviews 10

Since, the probability reading of the residual is 0.004 which is less than 5% levels. Hence, null hypothesis is accepted. It is concluded error that the variable, total liabilities has unit root which is presence of non-stationarity.

Table 5: Augmented Dickey-Fuller test of Inflation

Null Hypothesis: INFLATION has a unit root			
Exogenous: Constant			
Lag Length: 0 (Automatic - based on SIC, maxlag=3)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.42093	0.003841
Test critical values:	1% level	-3.92035	
	5% level	-3.06558	
	10% level	-2.67346	

Source: computed by author with Eviews 10

Since, the probability reading of the residual is 0.003 which is less than 5% levels. Hence, null hypothesis is accepted. It is concluded error that the variable, inflation has unit root which is presence of non-stationarity.

Table 6: Augmented Dickey-Fuller test of GDP

Null Hypothesis: GDP has a unit root			
Exogenous: Constant			
Lag Length: 0 (Automatic - based on SIC, maxlag=3)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.76131	0.802807
Test critical values:	1% level	-3.92035	
	5% level	-3.06558	
	10% level	-2.67346	

Source: computed by author with Eviews 10

Since, the probability reading of the residual is 0.8 which is greater than 5% levels. Hence, null hypothesis is accepted. It is concluded error that the variable, GDP has no unit root which is absence of non-stationarity.

Table 7: Augmented Dickey-Fuller test of Interest Rate

Null Hypothesis: INTEREST has a unit root			
Exogenous: Constant			
Lag Length: 0 (Automatic - based on SIC, maxlag=3)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.12118	0.239532
Test critical values:	1% level	-3.92035	
	5% level	-3.06558	
	10% level	-2.67346	

Source: computed by author with Eviews 10

Since, the probability reading of the residual is 0.24 which is greater than 5% levels. Hence, null hypothesis is accepted. It is concluded error that

the variable, interest rate has no unit root which is absence of non-stationarity.

Table 8: Augmented Dickey-Fuller test of Total Asset

Null Hypothesis: TASSET has a unit root			
Exogenous: Constant			
Lag Length: 1 (Automatic - based on SIC, maxlag=1)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.91634	0.019909
Test critical values:	1% level	-4.42059	
	5% level	-3.25981	
	10% level	-2.77113	

Source: computed by author with Eviews 10

Since, the probability reading of the residual is 0.01 which is less than 5% levels. Hence, null hypothesis is accepted. It is concluded error that the variable, total asset has unit root which is presence of non-stationarity.

Table 9: Augmented Dickey-Fuller test of Liquidity

Null Hypothesis: LIQUIDITY has a unit root			
Exogenous: Constant			
Lag Length: 0 (Automatic - based on SIC, maxlag=3)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.7403	0.3939
Test critical values:	1% level	-3.92035	
	5% level	-3.06559	
	10% level	-2.67346	

Source: computed by author with Eviews 10

Since, the probability reading of the residual is 0.39 which is greater than 5% levels. Hence, null hypothesis is accepted. It is concluded error that the variable, liquidity has no unit root which is absence of non-stationarity.

4.6 Co-integration Test of Bank Capital and independent variables

Table 10: Co-integration Test results

Unrestricted Cointegration Rank Test (Trace)	Bank Capital and GDP	Bank Capital and INTEREST RATE	Bank Capital and INFLATION RATE	Bank Capital and total liabilities	Bank Capital and total assets	Bank Capital and liquidity
No. of CE(s)	Prob.**	Prob.**	Prob.**	Prob.**	Prob.**	Prob.**
None	0.093802	0.091942	0.0003	0.0221	0.018577	0.2195
At most 1	0.149992	0.571178	0.3652	0.1021	0.229553	0.0585

Source: computed by author with Eviews 10

Trace test indicates no co-integration at the 0.05 level, * denotes rejection of the hypothesis at the 0.05 level.

The test result shows that the test statistic of 0.093, 0.091 and 0.219 for GDP, interest rate and liquidity respectively which are larger than the critical value at the 5% level. Hence, we reject null hypothesis of co-integration for these variables. The test result shows that the test statistic of 0.0003, 0.022 and 0.0185 for inflation rate, total liabilities and total assets respectively which are within the critical value at the 5% level. Hence, there is co-integration in the three variables with bank capital.

4.7 Diagnostic Tests

4.7.1 Serial Correlation Test

Table 11: Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	12.9082	Prob. F(2,2)	0.0719
Obs*R-squared	10.2091	Prob. Chi-Square(2)	0.006069

Source: computed by author with Eviews 10

The result shows probability reading for F values as 0.0719 which is tending towards 0 rather than 1. It shows that the residuals do not show presence of serial correlation.

4.7.2 Normality Distribution Tests Result

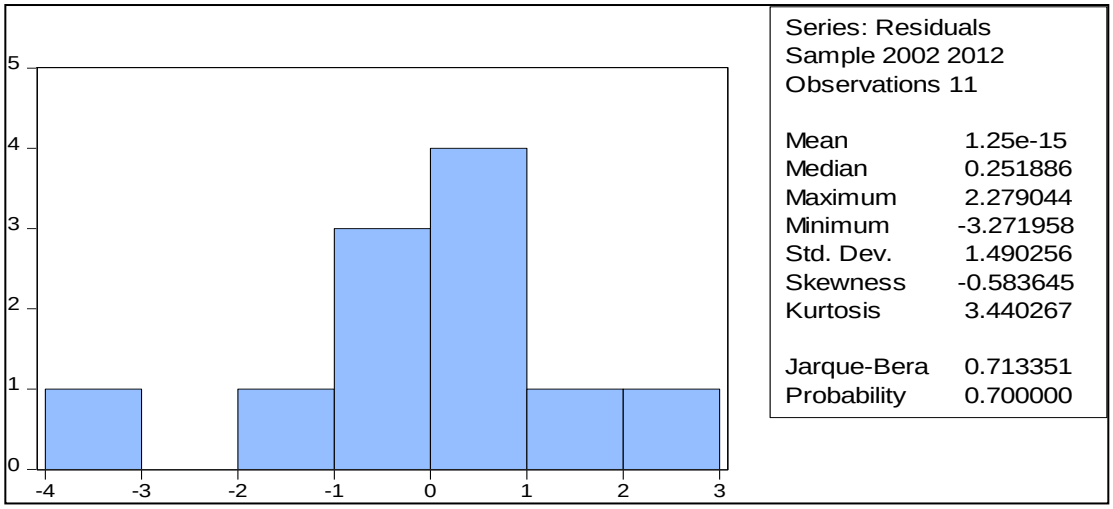

Figure 4 Normality Test

(Source: Author's computation using Eviews 10)

In the same vein, the probability of Jarque-Bera test is 0.70000 which is greater than the 5% level. Hence, null hypothesis is accepted and the alternative is rejected. Hence, the residuals are normally distributed.

4.8 Regression Analysis

Table 12: Least Squares Regression Analysis

Dependent Variable: BCAPITAL				
Method: Least Squares				
Included observations: 11 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	-0.300996999	0.358083611	-0.840577424	0.447895394
INFLATION	-0.000425064	0.043310943	-0.009814246	0.992639315
INTEREST	0.237203008	0.115684823	2.050424598	0.109637428
LIQUIDITY	0.27347628	0.129529499	2.111304999	0.102339784
TASSET	3.210254802	1.20441276	2.665410821	0.056073296
TLIABILITIES	-2.007381383	1.133970905	-1.770223005	0.151400208
C	-1.144536487	0.840641799	-1.361503185	0.244998550
R-squared	0.998444619	Mean dependent var		1.868260388
Adjusted R-squared	0.996111548	S.D. dependent var		0.258832287
S.E. of regression	0.016140121	Akaike info criterion		-5.153890777
Sum squared resid	0.001042014	Schwarz criterion		-4.900684695
Log likelihood	35.34639928	Hannan-Quinn criter.		-5.313501745
F-statistic	427.952967	Durbin-Watson stat		1.924748674
Prob(F-statistic)	1.45E-05			

Source: computed by author with Eviews 10

Table 13: Fully Modified Least Squares (FMOLS)

Dependent Variable: BCAPITAL				
Method: Fully Modified Least Squares (FMOLS)				
Included observations: 10 after adjustments				
Cointegrating equation deterministics: C				
Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth				
= 3.0000)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	-0.22388	0.208949	-1.07148	0.362489211
INFLATION	-0.00973	0.028958	-0.33612	0.758917594
INTEREST	0.230836	0.061357	3.762196	0.032840625
LIQUIDITY	0.318043	0.084089	3.782238	0.032393949
TASSET	3.010346	0.720405	4.178684	0.024966007
TLIABILITIES	-1.80729	0.689433	-2.62142	0.078905186
C	-1.39476	0.539348	-2.58601	0.081354665
R-squared	0.997941	Mean dependent var		1.910372174
Adjusted R-squared	0.993824	S.D. dependent var		0.229700204
S.E. of regression	0.018051	Sum squared resid		0.000977551
Long-run variance	7.18E-05			

Source: computed by author with Eviews 10

Interpretation

The above regression output shows a high R-squared and an overall F-statistic that is significant. However, individual independent variables are found to statistically insignificant to the dependent variable; bank capital. This depicts a problem of co-linearity in the variables. Diagnostic tests also show the presence of unit roots. Phillips and Hansen (1990) proposed an estimator which employs a semi-parametric correction to eliminate the problems caused by the long run correlation between the cointegrating equation and stochastic regressors innovations. The resulting Fully Modified OLS (FMOLS) estimator is asymptotically unbiased and has fully efficient mixture normal asymptotics allowing for standard Wald tests using asymptotic Chi-square statistical inference.

Fully modified least squares (FM-OLS) regression was originally designed in work by Phillips and Hansen (1990) to provide optimal estimates of cointegrating regressions. The method modifies least squares to account for serial correlation effects and for the endogeneity in the regressors that results from the existence of a cointegrating relationship

Initial Equation

$LogBC = \beta_0 + \beta_1 LogGDP + \beta_2 LogIR + \beta_3 LogIr + \beta_{4L} LogTA + + \beta_{5L} LogTL + \mu$.....equation 2

Regression Estimation output

LogBC = -1.40 -0.22GDP -0.01IR +0.23Ir +3.01TA -1.81TL +0.32Li + μ.....equation 3

The above regression estimate still shows a 99.7% R-squared figure which is a good co-efficient of determination. This demonstrates that the independent variables of GDP, inflation rate show no individual statistical significance in the model. However, interest rate, total liabilities and total assets all show individual statistical significance in the model with the

dependent variable; bank capital with an F-value of 0.03, 0.02 and 0.024 respectively which is statistically significant at 5% level. Liquidity is also found to be statistically significant with 0.07 F-value at 10% level. Thus, the explanatory variables show a confident capacity and determinant effect on the explained variable of bank capital of Turkish commercial banks.

Interpretation

The estimation output of the model demonstrates that for there to be an occurrence of 100% increase in bank capital of the entire Turkish commercial banks, there will be a corresponding 22% fall in Gross domestic Product which implies that the entire economy of Turkey will have to witness a 22% growth for Turkish banks to gain financial buoyancy. Conversely, 1% inflation rate decline from the current rate in the economic environment of the Turkish banks to reach this 100% growth in capital implying that inflation favours bank capital growth in Turkey. Likewise, an increase of 23% in interest rate has to be pegged by the Turkish central bank for bank capital to assume 100% growth simultaneously. This means the higher the interest rate, the higher the capital realised by the entire commercial banking sector in Turkey. In terms of total assets, for a 100% bank capital to be attained before a 300% increase in total assets can be witnessed by the commercial banks. This is found expected as assets increase proportionately with bank capital. Likewise, a 181% decrease in total liabilities affect bank capital to the degree that 100% rise is recorded. Similarly, a 32% increase in liquidity will induce a proportionate 100% rise in bank capital depicting a fairly strong positive relationship between the two variables. In aggregate, bank capital has a direct but weak proportional relationship with GDP, total liabilities and total assets but a fair direct positive relationship with interest rate. However, a strong inverse relationship is established by the model to describe the correlation between inflation and bank capital.

4.9 Heteroskedasticity Test: Breusch-Pagan-Godfrey

Table 14: Heteroskedasticity Test: Breusch-Pagan-Godfrey

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	1.431093	Prob. F(6,4)	0.379807
Obs*R-squared	7.504207	Prob. Chi-Square(6)	0.276721
Scaled explained SS	0.726766	Prob. Chi-Square(6)	0.993895

Source: computed by author with Eviews 10

Ho: p =0, Residuals are homoskedastic
H1: p ≠ 0, Residuals are heteroskedastic.

Since the test statistic has a p-value 0.37 greater than an appropriate threshold of p < 0.05) then the **null hypothesis** of homoskedasticity is accepted. Probability is 0.7980 which is greater than 5% level. Hence, we accept the null hypothesis H_0. There is absence of hetersoskedaticity in the residuals.

4.8 Discussion

The findings from the empirical investigation demonstrates that bank capital in Turkey is affected by environmental stability to a very low extent as 23% of environmental variables from the entire model drives a unit growth in bank capital. However, we can't categorically affirm from the total extent by which environmental stability affects bank capital since two variables were used. Also, a slight drop in inflation rate positively affects bank capital which implies that inflation is not good for bank capital and bank capital is highly responsive to inflation within the economy. Secondly, institutional variable of interest rate which is governed and regulated by the Apex bank has a fairly strong positive

effect on bank capital. Interest rate according to literature remains a viable driver and policy factor for bank capital as seen in the study on capital requirement and interest rate elasticity (Hense, 2015). Thirdly, internal variables which are not controlled by the central bank including total assets and liquidity have shown from empirical outcomes that positive relationship exists between them and bank capital and as such have 332% positive effect on bank capital. The higher the liquidity and assets that banks have either in total or current assets is an advantage for bank capital and they shown the highest impact on the dependent variable in the model and this is in consonance with the study on Chinese banks on capital and liquidity creation (Xie, 2016). The model also informs that there is high responsiveness of bank capital to these variables. However, in agreement to the establishment in the literatures, total liabilities usually have a negative effect on bank capital because it has a reducing effect at the end of asset calculation of banks. This model shows up to 181% negative impact of liabilities on bank capital. A similar study carried out on bank capital in 61 countries on how it is affected by the institutional environment with relevance to risk management showed that bank capital is associated with a reduction in the systemic risk contribution of individual banks(Anginer, Demirgüç-Kunt and Mare, 2018). This study opined that bank capital can mitigate the effect of feeble institutional environment in reducing systemic risk.

CHAPTER5

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The concluding chapter of this research is underpinned on the logical assertions and conclusions derived from the empirical investigation carried out in the previous chapter. The previous chapter explored the numerical differences and variance of the variables in relation to other variables of institutional stability and environmental impact on bank capital. This chapter will provide a summary on these findings and it surmise conclusions based on hypotheses, research aims and objectives. It will further allude recommendations for this research study.

5.2 Conclusion Based on Aims and objectives

This study was founded on couple of research objectives which is to empirical investigate the relationship of banking capital, environmental stability and institutional regulation and to know the impact institutional guidelines and environmental stability has on bank capital.

The study has revealed that on aggregate and on individual variable capacity, bank capital has link and firm established relationship with institutional stability and environmental stability. Empirically, stability in institutional guidelines gives rise and good stemming for growth in bank capital as proved from the study. However, this leads to conclude that instability in institutional regulation with mediums of control such as interest rate, and other liquidity control instruments can lead to negative effect on bank capital. Similarly, environmental stability also has a relationship with bank capital. The variables of GDP and inflation rate

have a 23% impact on the bank capital with both independent variables show in indirect nexus with bank capital. In aggregation, 23% fall in environmental variables will lead to 100% rise in bank capital. In the opposite direction, interest rate as seen as an institutional variable has significant 23% rate of impact on bank capital which is positive. The higher the interest rate, the higher bank capital goes in the financial system which is in concord with extant literatures that establishes the fact that interest rate is used in creating credit in a financial system. (ZHANG, 2016). A significant conclusion on the Turkish economy is the play of assets in terms of total and current assets of the banks. The model of the study submits that total assets has an 300% impact on bank capital revealing that higher assets owned by the bank can increase capital and mitigate the risks and shocks from the economic environment and total liabilities depicts a vice-versa relationship

5.3Conclusion Based On Hypotheses

The study has shown that there is a significant nexus between bank financial capital and institutional regulation. Hence, the researcher rejected the null hypothesis and accepts the alternative hypothesis.

In the second hypothesis, the researcher has rejected the null hypothesis and accepted the alternative showing from empirical findings that there is a strong direct nexus between bank financial capital and environmental stability.

5.4 Policy Recommendation

From a holistic point of view, the policy recommended from this study are directed to two frames; that of the Turkish central bank and that of the commercial banks.

The recommendations for the commercial banks are:

1. Commercial banks should improve their assets and reduce their liabilities as much as possible as total asset is found to have a direct positive relationship with bank capital.
2. It is essential that commercial banks maintain good liquidity levels so as to avoid having a debilitating effect n bank capital. Higher liquidity levels ensure that bank capital is buoyant.

For the institutional side, since the study has demonstrated that bank capital thrives in a good economic environment, the policies recommended are:

1. Liquidity levels which is regulated by reserve requirements should be monitored closely by the central bank in line with capital requirement conditions of the commercial banks. Liquidity is often determined by bank capital and the higher liquidity levels help improves capital.

2. The government should ensure that GDP growth and low inflation are productive aid banks in bank capital levels that is suitable for the financial environment.

3. Hyper-inflation specifically, should be avoided; the Turkish economy is seen to have inflationary pressures in the past and it not so viable for commercial banks because of the value of money. It reduces purchasing power which negatively affects bank capital.

3. Interest rate should be maintained at stimulating levels for bank capital. It serves as a mitigating role for the effects and shocks of the banking environment and the instability of the economic prevalence in Turkey.

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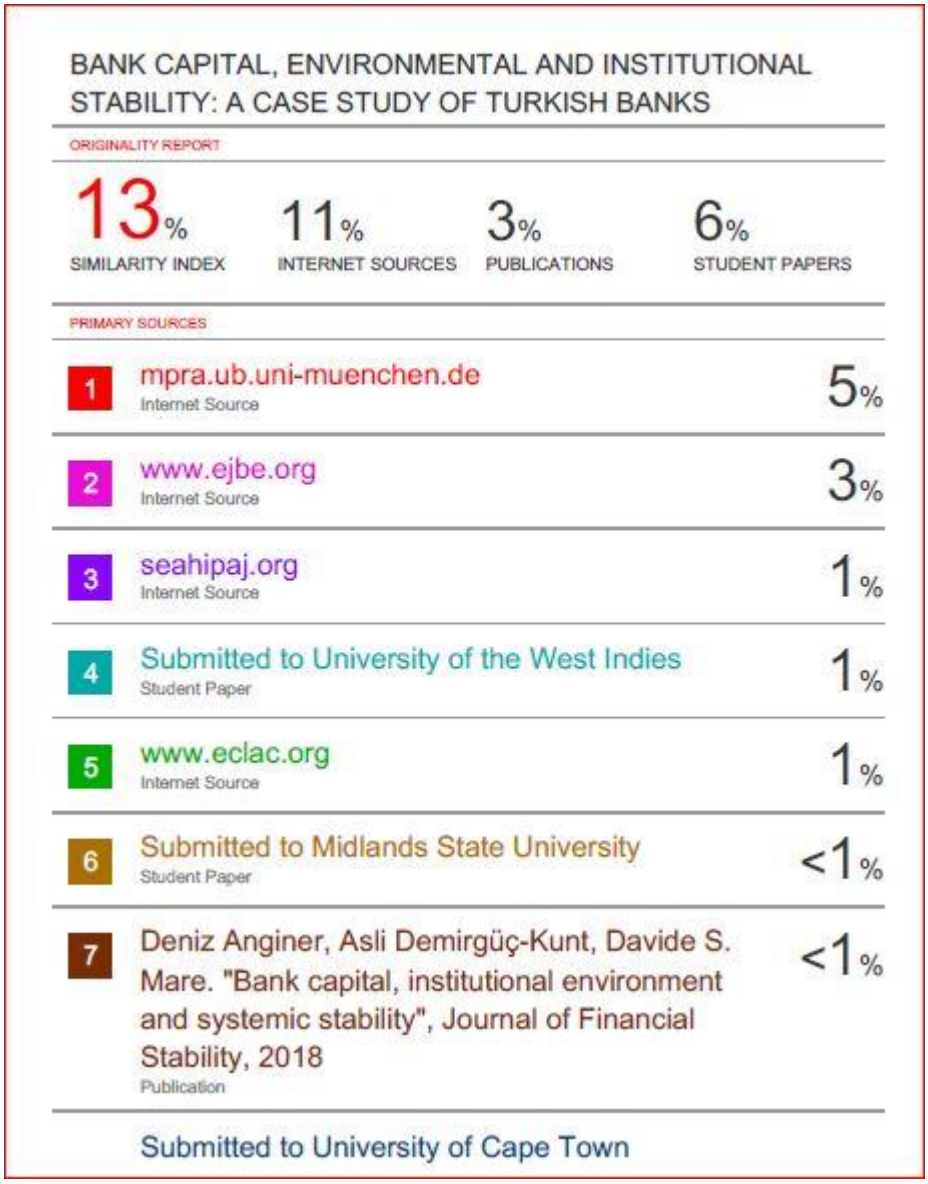
APPENDICES

Appendix 1. Logged Data Variables

TURKEY	GDP (constant 2010 US$)	INTEREST RATE	INFLATION RATE	total liabilities	total assets	liquidity	Bank Capital
2002	2.717161	1.740363	1.652826	2.051585	2.103988	1.311054	1.447143
2003	2.740859	1.633468	1.334454	2.19562	2.229346	1.433256	1.555554
2004	2.780845	1.579784	0.934498	2.296033	2.328524	1.371409	1.646159
2005	2.818311	1.361728	0.912753	2.434725	2.470453	1.244494	1.713961
2006	2.84814	1.431364	0.982271	2.511288	2.544734	1.280021	1.798022
2007	2.869455	1.39794	0.942504	2.610416	2.644618	1.171441	1.890589
2008	2.87311	1.39794	1.0187	2.68869	2.714584	1.143169	1.953242
2009	2.852183	1.176091	0.79588	2.773158	2.801525	1.200373	2.037845
2010	2.887562	1.146128	0.932981	2.856506	2.890217	1.161969	2.105793
2011	2.933329	1.230449	0.810904	2.89738	2.941209	1.037764	2.169333
2012	2.953648	1.130334	0.948902	2.960602	2.997175	1.108989	2.233225
2013	2.989043	1.010724	0.874482	#VALUE!	#VALUE!	1.205687	2.300036
2014	3.010922	0.954243	0.946943	#VALUE!	#VALUE!	1.232545	2.369155
201	3.036579	0.954243	0.884795	#VALUE!	#VALUE!	1.21048	2.425076

5						7	
2016	3.050191	0.942008	0.89098	#VALUE!	#VALUE!	1.197685	2.49059
2017	3.081482	0.942008	1.046885	#VALUE!	#VALUE!	1.175931	2.56543
2018	3.093588	1.267172	1.212986	#VALUE!	#VALUE!	1.173501	2.635361

TURNİTİN REPORT



BANK CAPITAL, ENVIRONMENTAL AND INSTITUTIONAL STABILITY: A CASE STUDY OF TURKISH BANKS

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