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**Effects of Basel III Directives on the Credit Risks of  
Turkish Banking Sector**

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**Istanbul June 2014**

# Effects of Basel III Directives on the Credit Risks of the Turkish Banking Sector

## Basel III'ün Türk Bankacılık Sentöründe Kredi Riski Üzerine Etkisi

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Jüri Üyesi: Haluk Yener:

Tezin Onaylandığı Tarih: 27.06.2014

Toplam Sayfa Sayısı: 92

### Anahtar Kelimeler (Türkçe)

- 1) Kredi Riski
- 2) Basel III
- 3) Sermaye Yeterliliği
- 4) BIS, BDDK
- 5) Türk Bankacılık Sistemi

### Anahtar Kelimeler (İngilizce)

- 1) Credit Risk
- 2) Basel III
- 3) Capital Adequacy
- 4) BIS, BRSA
- 5) Turkish Banking System

# **Effects of Basel III Directives on the Credit Risks of Turkish Banking Sector**

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## Özet

Bu tezin amacı, Basel Komite tarafından 2010 yılında yayınlanan Basel III kurallarının, Türk Bankalarının kredi riskleri üzerindeki muhtemel etkilerini ortaya koymaktır. Benzer çalışmalar, Basel III ile birlikte ortaya çıkan yeni düzenlemelerin bankacılık sektöründe kredi daralmalarına neden olacağı ve bankaların kredi risklerinde azalmalar olacağını ortaya koymaktadır. Ancak ülkelerin mevcut bankacılık ve ekonomik yapıları incelendiğinde Basel III'ün kredi riski üzerindeki etkileri sınırlı kalabileceği görülmüştür. Bu nedenle, bu çalışma Türk Bankacılık Sektörünün kısa geçmiş tarihi, Basel I ve Basel II uygulamaları, Türk ekonomisindeki makroekonomik gelişmeler ve bankacılık sektöründeki düzenlemeler de dikkate alınarak ortaya konmaya çalışılmıştır. Bulgular sonucunda Basel III'ün kredi riski üzerindeki etkisinin, düzenlemelerin uygulamaya tam olarak başlanması ve uygulamalar sonucunda daha uzun bir süreçte incelenmesi ile net olarak açıklanabileceği görülmüştür.

Anahtar Kelimeler: Basel I, Basel II, Basel III, Türk Bankacılık Sektörü, Kredi Riski, Kredi Riski Yönetimi

## **Abstract**

The aims of this thesis is to reveal likely effects the Basel III rules on Turkish banks' credit risk. According to many similar studies Basel III along with the emergence of new regulations will lead to credit crunch in the banking sector and will reveal reductions in banks' credit risk. However considering the current banking and economic structures of the countries may remain limited the impact of Basel III on credit risk. Therefore this study has tried to put forward considering brief history of the Turkish Banking Sector, Basel I and Basel II implementation, macroeconomic developments in the Turkish economy and banking sector regulations. Findings show that the effect on the credit risk of Basel III can be explained by regulations begin to fully implemented and application of the results to be analyzed in a longer process.

**Key Words:** Basel I, Basel II, Basel III, Turkish Banking Sector, Credit Risk and Credit Risk Management

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## Abbreviations

A-IRB	: Advanced Internal Based Approach
BCBS	: Basel Committee on Banking Supervision
BIS	: Bank for International Settlements
BRSA	: Banking Regulation and Supervision Agency
CAR	: Capital Adequacy Ratio
CDS	: Credit Default Swap
CRA	: Credit Rating Agencies
EAD	: Exposure at Default
EL	: Expected Losses
FED	: Federal Reserve Bank of the USA
F-IRB	: Foundation Internal Based Approach
G-10	: Group of Ten
GDP	: Gross Domestic Products
HQLA	: High Quality Liquid Assets
IBRD	: International Bank for Reconstruction and Development / World Bank
IRB	: Internal Rating Based Approach
IRC	: Incremental Risk Capital

IMF : International Money Fund

LCR : Liquidity Coverage Ratio

LGD : Loss Given Default

NSFR : Net Stable Funding Ratio

OECD : Organisation for Economic Co-operation and  
Development

OTC : Over the Counter Markets

PD : Probability of Default

QIS : Quantitative Impact Study

RWA : Risk Weight Assets

S&P : Standard and Poors

SME : Small and Medium Enterprises

TCMB : Turkish Central Bank

Tier-1 : Core Capital

Tier-2 : Supplementary Capital

UK : United Kingdom

US : United States

VAR : Value At Risk

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## 1. INTRODUCTION

Recent financial crisis showed that several fragility in global regulatory framework of Basel I and Basel II, also main causes that financial institutes poor risk management practises, global financial imbalances, lax financial regulation and supervision deficiency (Auer and Von Pfoestl, 2011 and Atıcı and Gürsoy, 2011). International financial markets have increased the volume of interbank lines of credit, securities began to be sold at lower rates in order to generate liquidity when needed (Heider, Hoerova and Holthausen, 2009). In the US decline in housing prices led to problems of mortgage loan payments and this reflected other forms of credit. The complexity of credit instruments and markets, investor put on uncertainty about the magnitude of the risk in these instruments (Sarkar, 2009). Crisis has spread to so rapidly other countries, because of globalization and securitization of risky assets (Atıcı and Gürsoy, 2011). The financial crises is accepted to be one of the worst crises that happened since the Great Depression in 1929, because of its systemic effects. (Sarkany, 2011). Following the supprime crisis in 2007 and European sovereign crisis in 2009, capital and liquidity insufficiency in global banking system revealed as a great threat to the global economy (Cannata and Quagliariello, 2009). Banks suffered huge losses in their trading book, these losses caused losses in the banks' capital (Varotto, 2011). Policymakers and regulators sought to identify possible failing in the current framework, which known as Basel II (Sobreira, Martins and Gouveia, 2012). An international framework was needed, since the systemic risk dimension and the complex inter-relatedness of banks all over the world were undeniable (Kapadia, et al., 2012). In order to increase the stability of the financial markets and prevent future negative impact on the economy (Auer and Von Pfoestl,2011). For this reason, at the end of 2010, The Basel Committe on Banking Supervision (BCBS) released two documents that are commonly referred as Basel III framework: 'Basel III, A global regulatory framework for more resilient bank and banking systems' and 'Basel III, International framework for liquidity risk measurement, standards and monitoring'. Following Basel I and Basel II,

Basel III is the third of agreements. Basel III is not fully the solution many of the problems that caused the financial crisis but is expected to correct shortcomings of Basel I and Basel II (Siskos, 2013). The new framework, Basel III reforms relates to strengthening the quality and quantity of bank's regulatory capital and improve risk coverage for more complex financial institutions. Related these capital improvements are supported by international harmonized leverage ratio and by counter-cyclical buffers for to limit systemic risk, pro-cyclicality buffers and a new global liquidity standard.<sup>1</sup>

The purpose of the measurement of Basel III is to develop the banking sectors and financial markets to provide that risk not spread to the real economy (Gideon, Petersen, Mukuddem-Petersen, 2013). Basel III is expected to improve the recognition of losses and is to more robustly promote financial stability (Amediku, 2011). However, in the short term, the new Accord is expected to generate significant utility, higher capital ratios can lead, banks' loan rates to increase and reduce lending (Ghosh, Sugawara, Zalduendo; 2011).

In the 2008 crisis, regulators and supervisors more focused on micro-prudential supervision of institutions, not pay attention to the system as a whole (De Larosière, 2009). Therefore the previous Basel Accords focused on microprudential regulatory that provide the safe, sound and banking transactions. Nevertheless, Basel III is macroprudential regulations, effects of systemic risks that globally interconnected financial institute (Went, 2010).

Basel III and other two Accord include significant changes the determination of interest rates on loans and the strengthening of guarantees for companies and customers who demand credit ( Arslan, 2007).

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<sup>1</sup>BCBS (2010) 'Results of the comprehensive quantitative impact study bank for international settlements, BCBS(2011) Basel III: A global regulatory framework for more resilient banks and banking system, BCBS(2013a) Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools

BCBS enacted Basel III which contains a new set of rules aimed at reducing the probability and severity of a crisis in the banking sector while simultaneously propping up systemic financial stability. BCBS's diagnosis of the determinants of the plight seems in principle, given that the necessity of capturing tail risks in a more accurate fashion appears explicitly mentioned.<sup>2</sup> In mid-2007, when reached a peak of the credit boom, following by the increase problems with mortgages loans and securitizations products (Ivashina and Scharfstein, 2008). In the last quarter of 2008, consisting unstable macro-economic conditions in the financial markets, caused a marked slowdown in credit growth and credit losses ( Dimitriu et al, 2011). As a results loss of credit, credit reduction in equity the decrease caused by banks (Yardımcıoğlu, Demirel, 2010). According to Atıcı and Gürsoy (2011) Turkish banking sector was much better than banks in Europe and much more successful in coping with the crisis during the financial crisis. They also stated that Turk banks has experimented a lot of banking and liquidity crises, especially the most severe crises in 2000 and 2001, has learned a lot and has developed substantial amount of precautionary and structural measures towards the crises.

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<sup>2</sup>BCBS (2011) Basel III: A global regulatory framework for more resilient banks and banking system

## 2. RESEARCH QUESTION

The purpose of this study is to analyse the evolution and nature of the Basel III and how it effectiveness on credit risk of Turkish Banking Sector. With this study focus on, credit risk and credit risk management of the meaning of banking, the scope of credit risk, BIS and BRSA related to credit risk approach, Basel I and Basel II what types of changes revealed credit risk, Basel III what types of change can create credit risk and banking sistem. Related to Basel III BIS and BRSA documents and with the literature have tried to expose set of standards that could likely impact on the Turkish banking system. But Basel III is to be applied between 2013 and 2019, some issues stil update by BIS and BRSA, evaluating for performance of Basel III may not healty results. Therefore, depending on the performance of Basel III, this thesis can be developed in the coming years. This study is on Basel III, focusing on debates and discussion about its importance and significance to the banking industry and the overall macroeconomic needs banking system.

### 3.LITERATURE REVIEW

In the financial literature we can observe in recent years, have written extensively about the financial crisis, the international financial regulations and standards, Basel Accords, banks' risk types and banks' risk management. The paper relates on Basel III banks' credit risk. Firstly on the literature focuses on globalization and Basel Accords. Studies done by Frankel (2000), Arslan (2007) and Daniela and Dorina ( 2011) stated that country markets integrated with globalization and for banks having international standards, only base area of credit risk in Basel I Accord has been published by the BIS. Sarma (2007) Cornfrord (2004) and King and Tarbert (2011) emphasised the importance of capital adequacy, which introduced with Basel I, in their studies. Correspondingly, Khan (2012), Ahmet and Khalidi (2007) and Akhtaruzzaman (2009), Külahi, Tiryaki and Yılmaz (2013) mentioned that lack of Basel I and was not able respond enough need of the banking sector. The increase in trade volume between countries, technological progress, improvement of the indicators of economy and the necessity of external fund for domestic projects in developing countries were caused Basel II. Filiz (2007), Temel and Oktay (2007), Arslan (2007), Akyüz (2007) and Onado (2008) argued it provide increased banks' risk management practies and risk measurements technieques. Other than these, Gordy and Howells (2006), Yayla and Kaya (2005) and Graffin (2008) concluded the importance of banks; Basel II's risk assessment, risk rating, and exertarnal rating agencies. Basically Basel II can enhance banks risk sensitivity, capital management allocation and solvency position of banks but Basel II regulations, this was not enough and in 2008 to live with the crisis of the financial markets, authority and supervisory said that need the new regulations for improve resilience of the system. Basel III published since 2010, there have many studies examined related to its innovation, features, purpose and impact on the international financial markets. According to one of the studies that are conducted by Hannoun (2010) stated that Basel III is to prepare the intarnational market and banking sector for future economic vulnerability by improving to

absorb shocks emerged from financial and economic stress, improving risk management and governance and strengthening bank's transparency. Went (2010) continued as Basel III reduce the destructive effects of the global and systemic banking crisis, by affecting the price and volume of loans with a combination of risk based capital and liquidity. Basel III may help banks to avoid systemic risk and its negative impact on the economy with counterparty risk ( Haldane and May, 2011). Went (2010) Atıcı and Gürsoy (2011), Repullo and Suarez (2009), Sutorava (2012) emphasized the importance of capital buffer. Atıcı and Gürsoy (2011) in their studies pointed out that Turkish Banks' capital buffer is higher than European banks, banks works with capital buffer above the required capital adequacy ratio.

Existing theory suggests a number of ways in which Basel III may change bank lending behaviour. Studies such as those by Varotto (2011), Auer et al.(2011), Cangürel et al.(2010), Elliot (2010) Miu, Özdemir and Giesinger (2010), Locarno (2011) emphasize the relationship between credit risk and Basel III, and they stated that additional liquidity and capital requirements negative effects on credit risk because increase cost of capital. Tracing Basel III negative impact on credit risk via the changing of bank probability. Numerous studies have focused on Basel III the negative impacts on macroeconomy Manssoom and Radstrom (2011) conducted increasing capital requirements also increase the cost of banks and this impact on real economy. Külahi et al.(2013) increase the capital requirements affect the country's growth rate. Because banks will lead to allocate less capital loans and investments, low risk group will not benefit credit facilities and consumption will reduce that will affect the country's economy. Central to all these studies is the notion that Basel III affects either directly or indirectly banks' credit risk and that the strength of this relationship is influenced at least in part by regulatory capital and liquidity standards.

Recent studies Külahi et al. (2013), Delikanlı (2011) Yardımcıoğlu and Gökçe (2010) and Taşkinso (2013) on effects of Basel III on Turkish

Banking System credit risk indicate that they Turkish banks have to meet capital the requirements of the Basel III, but when consider the risk factors, their profitability could decrease.

Considering the studies that are conducted to understand the effects of the Basel III on credit risk especially on Turkisk Banking Sector, it is realized that is required monitoring accurate Basel III applications. For this reason this study focused on the possible effects of Basel III.

## 4.HISTORY OF REGULATIONS AND RESPOND TO FINANCIAL CRISES

Since end of World War II, the world financial markets has entered an increasingly globalized process (Frankel, 2000). The process of the globalisation the economic environment was changed rapidly, capital movements became larger at the same time less controllable and several mistake led to the collapse of the economic and financial relations in global market, these weaknesses in the economy peaked in 1929 Great Depression (Dammasch, 2007). Prescott (1999) stated that the Great Depression was a great decline and this decline was the unpredictable effect on labor force and industrial policies that created to develop the economy.

In 1944, with disruption of the gold standarta, the collapse in the economy and mass unemployment, improved a new global monetary policies known as the Bretton Woods (Dominguez, 1993). Objective of the Bretton Woods System that would provide monetary, international trade and international finance stabilization (Stevens, 1973). From 1959 through 1968, the system worked effectively currency convertibility (Garber, 1993). A study performed by Triffin (1960) warnings provided to implement significant changes in the provision of liquidity and to maintain capital management system. In addition, this aggrement led to the establishment International Money Fund (IMF) and International Bank for Reconstruction and Development (IBRD / WORLD BANK) (Stephey, 2008). USD was be insufficient to meet the high demand and high inflation caused the collapse of Bretton Woods system (Dammasch, 2007). After the breakdown of the Bretton Woods managed exchange rates led to losses<sup>3</sup> and with floating exchange rates, increasing capital mobility and financial liberalization, began to change for economic stability (Clement, Borio and Toniolo, 2008). There was the first oil crisis. After 1973 began changes in international banking transactions (Lartey, 2012) then international debt crisis increased

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<sup>3</sup>BIS-A Brief History of the Basel Committee

the fragility of sensitivity.<sup>4</sup> In the aftermath of serious disturbances in international currency and banking markets following the failure of the Franklin National Bank in New York and the Herstatt Bank in West Germany, in response to disruptions and changes in the international financial markets, the central bank governors of the G10<sup>5</sup> countries established Basel Committee on Banking Supervision (BCBS) in 1974. The purpose of the BCBS increased financial stability by improving supervisory and surveillance and the quality of banking regulations.<sup>6</sup>

The Latin America broke out debt crisis, which was the first global financial crisis and BCBS played an important role in the management of crisis and thus prevented the spread of the crisis (Clement and Maes, 2013). BCBS created a wide range of approach which combining the microprudential and macroprudential regulations to financial stability (Crockett, 2000). The Latin America crisis led to the identification of the minimum capital requirements in the international banking system (Sarkany, 2011). In the early 1980s banks reserve requirements were used only for monetary controls (Lartey, 2012) and Wallison (2007) point out that capital regulations an important tool for to curb excessive risk-taking and to provide prudential regulations by banks. Larson (2011) stated that during the Great Depression and the subsequent crisis seen that a major cause of the economic crisis in the banking system shortage and with the rapid increase in cross-border banking has increased the need for new regulations in the international banking system.

BCBS was to create common standards with opinions and suggestions of international banks, local banks and authorities in the international banking system and in 1988, BCBS published the Basel Capital Accord, to strengthen the structure of the banks (Atiker, 2005).

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<sup>4</sup>BIS- History [http://www.bis.org/about/towards\\_EMU.htm](http://www.bis.org/about/towards_EMU.htm), BIS-A Brief History of the Basel Committee

<sup>5</sup>The G10 countries have been represented by the most industrialized countries: Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, Netherlands, Sweden, Switzerland, Turkey, United Kingdom and US In 1982,

<sup>6</sup>BIS-Core Principles for Effective Banking Supervision (Basel Core Principles-September 1997)

Basel Committee has created the preconditions for the effective control and supervision in the international banking system. These; a-) Banks' activity area and permission b-) Administrative of the banks regulations and practices c-) Bank supervision methods d-) Obligation to provide information e-) Cross-border banking<sup>7</sup>. According to Dupuis (2006) and K lali (2013) the Basel Committee worked to remove the differences by international arrangements and to eliminate unfair competition arising from these differences in banks. Therefore, Committee aimed at the sustainability of economic stability, creating an effective risk management in financial markets. Basel I, Basel II and Basel III, which are created by observing to exposed the risk banking system; are intended to development of risk management in banking, more effective credit and asset management (Saltođlu et al, 2011).

## **5.THE BASEL ACCORDS**

### **5.1.Basel I Accord**

In the early 1980's occurring in interest rates and exchange rate changes caused rapidly increasing inflation. In this case, globalization accelerated rapidly and let to the intensification of competition in financial markets in this years. Also, experienced in bankruptcies several country. (Arslan, 2007 and Daniela, Dorina, 2011)

During the 1990s one of the most important developments has been implementation of the minimum capital standards under Basel Capital Accord for banking sector in developed and developing countries all over the world (Hassan and Hussain, 2006).The Basel I Accord let to the recovery of the banking system because it created an international standart the calculation of the capital adequacy of banks and encourage regulatory compliance (Balin, 2008).

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<sup>7</sup>BIS-Core Principles for Effective Banking Supervision (Basel Core Principles-September 1997)

The basic idea behind the Basel I, banks have enough capital to offset their risk (King and Tarbert, 2011) Basel I was designed for the Organisation for Economic Co-operation and Development (OECD) countries, even though its impact was felt in many more countries (Cornford, 2004). According to Bakshi (2004) since introduced, the capital adequacy ratio is the most important indicator the banks of financial strength and sturdiness. Sarma (2007) stated that the capital adequacy ratio is an indicator of a healthy financial. Basel I Accord required that this ratio should be at least %8 for commercial banks across countries and measured total capital divided by total risk weight assets.<sup>8</sup>

This ratio is seen as minimally adequate ratio to protect against credit risk in international banks (Balin, 2008).

$$CAR = \frac{\text{Total Capital}}{\text{Risk Weighted Assets}} \geq 8$$

A study performed by Van Roy (2005) showed that after the introduction of the new capital adequacy rules, for banks' capital ratios increased in G-10 countries but credit risk did not increase or decrease. This study also showed that Basel I has effected on bank behavior such as changes capital and risk and this effects unrelated for Canadian, French, Italian and United Kingdom (UK) banks, positively impact Japanese banks and negatively impact for United States (US) banks. As a result; both adequately capitalized and undercapitalized banks adjust their capital and risk level differently in different countries. The main objectives of the Basel I ensured stability and robustness in international banking system (Stephanou and Mendoza, 2005).But Basel I was criticized for its deficiency; it was not enough for stability of international financial system because it only measure credit risk and applied for only G-10 countries. Also, its' neglect of market risk was limiting its effectiveness (Khan, 2012).

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<sup>8</sup>BIS-Core Principles for Effective Banking Supervision (Basel Core Principles-September 1997)

In 1996, BCBS published an 'Amendment to the Capital Accord to Incorporate Market Risks' added to the 1988 Basel Accord to ensure capital cushion for the price risks to which banks exposed, particularly those arising from their trading activities. Thus trading positions such as; bonds or foreign exchange were removed from credit risk framework and market risk included to calculating of capital adequacy.<sup>9</sup> Another criticism regarding Basel I Ahmed and Khalidi (2007) stated as follows; because non-OECD countries were assigned a higher risk weights according to the OECD banks, financial system of developing countries were a negative impact on distortions in the international banking industry. According to Akhtaruzzaman (2009) the Basel I Accord, with risk sensitivity and uniform application in credit risk measurement, resulted in a significant gap between measured risks and the real economy risk. Because in Basel I, the banks exposed to calculated by different risk classes and by multiplying the risk weights of each classes with the coefficients of 0%, 10% 20% and 100% for credit risk. Yayla and Kaya (2005) stated that Basel I regulated only five group carrying different risks assets included in the same risk group. Therefore Basel I had low risk sensitivity and it caused to incorrect risk analysis. (Kovanis and Kvaem,2012). Although strengthen the structure banks, Basel I criteria was unable to respond adequately to the growing needs of the industry, cover only the capital adequacy regulations and economic problems shown that the need for new regulations. Basel II Accord was created in 2004 for response to this problem (Külahi, Tiryaki and Yılmaz, 2013).

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<sup>9</sup>BIS- Amendment to the Capital Accord to incorporate market risks (1999)

## 5.2. Basel II Accord

Global market exposed many financial crisis which increasing proportions deregulations in the 1980s and macro scale financial crisis in the 1990s. Occuring in information and communication with technology innovations, global capital has flown easily from one country to another and capital directed markets which is the greatest return. Because of means high risk high return, international banks, which using financial theory and statistical information, have began to develop to better measure and manage their risk in new approach. Basel II published in 2004, as a result of ongoing five years researches, trading activities and issues of double default effects, updated in 2005 and the full text was published in 2006 (Arslan, 2007). Basel II is much more comprehensive regulation compared with Basel I, (Sarma, 2007). While Basel I has focused on bank-own capital, Basel II taked notice of banking risk measurement and management (Filiz, 2007). The Basel II aimed at overcoming deficiency of the Basel I, by making more prudential and current regulation banking system and financial markets (Cannata and Quagliariello, 2009).

Temel and Oktay (2007) stated that Basel II would provide that increasing the cost of banks, more effective risk management, corporate governance and international markets safer and effective execution of banking operations and more precise measurement of risks arising from banking activities such risks be associated with bank capital. In addition, the work made by Arslan (2007) argued that Basel II especially worsens bank lending conditions and has brought to give guarantees extreme conditions the company. Thus companies use credit either fulfilling the requirements of Basel II or giving more guarantees and also higher interest rate. A study worked by Akyüz (2012) stated that Basel II brought severe conditions on collateral and these conditions have exacerbated lending conditions, but possessing these conditions are provided easier to firms. Other firms that, do not have the Basel II requirements; were able to use higher loan quarantess. Thus, began to be defined that credit the firm risk degree and the degree of

credit risk by Basel II. High degree of credit risk, doing a risky investment bank, and shows that its need to allocate more capital.

BCBS with these issues, the purpose of the transition to Basel II as stated 'give more attention to risk management and provide the development banks' risk assessment'<sup>10</sup>. Basel II stand on three pillar: Pillar I; Minimum Capital Requirement; is related to quantitative valuation and more risk sensitive minimum capital requirement. Although the rate remain 8%, the most important change has been the rate of in the measurement. Under the Basel II framework; the measurement of credit risk was more complex, market risk measurement was left unchanged and proposed a new measurement for operational risk (Graffith-Jones and Spratt, 2001). Pillar 2; Supervisory Review: involved basic standards for bank supervision to minimize regulatory arbitrage, Pillar 3; Market Discipline: for the banking system requires more transparency standards.<sup>11</sup>

Under the auspices of the Basel Committee on Banking Supervision and as it is called QIS (Quantitative Impact Study) showed that once fully implemented Basel II capital adequacy ratio would decline for many banks.<sup>12</sup> Kaufman and Benink (2008) these studies emphasized that for several banks' capital adequacy decrease when measured according to the rules of Basel II.

In the United States, QIS results has shown to decline more than 50% in huge capital banks. In Turkey, QIS result indicated that Turkish banks have not faced any problem regarding capital adequacy, they have already sufficient capital.<sup>13</sup> Along with the Basel II removed the OECD clup rules and the "one-size fit all" model and sovereign rating given to began by authorized rating institution (Balin, 2008).

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<sup>10-11</sup> BIS (2004a): 'International Convergence of Capital Measurement and Capital Standart: A Revised framework' BIS (2004b): 'Implementation of the New Capital Adequacy Framework in Non-Basel Committee Member Countries'

<sup>12</sup>BIS (2002): Quantitative Impact Study 3 Instructions

<sup>13</sup>BDDK(2011): BASEL-II Üçüncü Sayısal Etki Çalışması QIS-TR3 Değerlendirme Raporu – Mart 2011

Academics claim that because sovereign rating developing and emerging countries is not high enough to industrialized and high-income countries, this has negative impact to credit facilities in these countries (Sarma, 2007) Graffin (2008) stated that the description of Basel II is insufficient credit rating agencies in the valuation of the banks' capital adequacy and in the crisis of 2008, banks could not protect against systematic risk. One of the main objectives of Basel II is to ensure compliance banks' regulatory capital requirements with the basic credit risk (Nachane, Grosh and Ray, 2006). Onado (2008) with this issue stated that Basel II is aimed at the elimination of the insufficient relationship between risk and capital, and thus can be upgraded to international capital base of the banking system. In Basel II determining capital adequacy, the risk weight of the borrower have depended on the credit rating in the calculation of credit risk. Ratings note given by rating agencies as well as the bank's internal ratings generated from databases should move in the same direction as the economy (Yayla and Kaya, 2005). In the 2008 crisis, many credit agencies gave false high rating securities products and the highest rating for securities was allocated less capital. As a result of their exposure to those securitized assets banks had too little capital. Basel II has been criticized because of requiring banks to increase their capital when risk rise, this case caused a reduction in bank's loan when is less capital and could create the potential for crisis (Gordy and Howells, 2006).

In Basel II, capital has become more sensitive to credit risk by adopting either the Standart Approach that performed credit ratings by external rating agencies or the Internal Rating Based Approach (IRB) that based on the bank's own risk models (Butt, 2013).

### **5.2.1. Standardized Approach**

Risk sensitivity is more comprehensive and sensitive according to Basel I. The banks allocate a risk weight to for each asset and off-balance sheet

position which is created standard asses degrees and reflecting the degree of credit risk weights. Standart Approach; risk weights to rating provided by external rating agencies<sup>14</sup> which give to a class of high-risk assets entering receivables under follow and some other independent rating agencies standard risk weights. These weights between 0% ( rated AAA) and 150% (rated below BB-).

Gu (2011) stated that companies especially have a high risk rating may be reluctant to rating against the possibility of the change in the degree of risk for example the company risk weight is 100% can be up to 150 % and banks will be allocated more capital for the company and this is reduced credit facilities. According to Graffith-Jones and Spratt (2001) credit risk of measurement by the standard method, rating agencies unable to receive timely information on developments in the country, the assessment does not reflect realities related to country rating. Another criticism with the standardized approach Larson (2011) identified that its failure to protect aganist of securitization before and during global financial crisis. Under Basel II's standart approach, despite the fact that securitized risk weights depend on external credit ratings, banks have assigned a single risk weight to all securitization. So external credit rating agencies is highly important for banks, faced to securitizations.

### **5.2.2. The Internal Rating Based Approach**

The Commitee expects internationally active banks involved in complex risk transfers and those with an above-average risk profile to take steps to be in a position to use the IRB approach.<sup>15</sup> In the IRB credit risk, banks form their own risk measurement systems with help of regulators (Balin, 2008). Banks measured credit risk by internal rating cyclical movements more

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<sup>14</sup>In the Standart Approach, risk weighting are to a significant extent based on the assessmnet of External Credit Assessment Institutions such as Moodys, Standart&Poors and Fitch.

<sup>15</sup>BIS, Overview of The Basel Capital Accord, 2001

significantly seen in the economy. When the economy is good, loan losses decreased in the period, worst increased (Danielsson, Goodhart, Keating, Muennich, Renault and Song, 2001). Internal Rating Approach; included that highly rated for customers need less legal capital and low rating for customer more legal capital. This situation banks have led to many highly rated customers (Yayla and Kaya, 2005). With study on IRB Graffith-Jones and Spratt (2001) suggested that, in case of banks implement the internal approach, bank loans decrease in emerging markets and international borrowing costs increase. They also asserted that with high profit and a more competitive structure IRBs benefit from international banks, through their subsidiaries sovereignty of developing countries will increase in the credit markets and to take the place of national banks. Gordy (2003) found that 'IRB approach is closely linked to key results of modern asset pricing theory. Its methodology is based on a model that establishes the likelihood of a borrowing company being unable to repay its debt, as determined by the difference between the value of its assets and the nominal value of its debt.

Banks using the IRB approach must allocate its exposure classes; including claims on governments, institutions, corporates and retail customers.

The IRB approach, banks estimate each borrower's creditworthiness and the results in to estimates of a potential future loss amount. Its has two varies;

- **The Internal Rating Based Standart Approach (F-IRB);** banks estimate the probability of default associated with each borrower and the supervisors supply other necessary inputs as well. In this approach banks can calculate probability default (PD) but counterparty losses (LGD) are provided by experienced agencies.
- **The Internal Rating Based Advanced Approach (A-IRB);** the range of risk weights are far more diverse than other approach and

resulting in greater risk sensitivity. Banks calculate both PD and LGD.

Under the Standardised Approach to credit risk, is allowable in Tier 2 capital up to a limit of 1,25% of risk weighted assets but this is not allowable IRB. Total risk weight assets are gained by multiplying market risk and operational risk by 12,50 for capital requirements and adding to the results of the risk weighted assets for credit risk (Amediku, 2011).

The recent financial crisis related to many academic papers, reports and studies has shown that the markets were far from equilibrium and almost collapsed since the Great Crisis (Sarkany, 2011). Before the crisis began conversations how to improve the deficiencies of Basel II by the members of BCBC. In the fall of 2010, BCBS released three Basel III after several discussions and negotiations (Larson, 2011).

### **5.3. Basel III Accord**

The global financial crisis of 2007/2008 revealed very serious deficiencies not only financial markets but also the supervisory and regulatory at international level (Giovanoli and Devos, 2010). Before 2008 financial crisis, banks falsely believed that banks held low risk assets, regulators believed that banks have enough capital even in tough times and both banks and regulatory of false informations are caused the 2008 financial crisis (King and Tarbert, 2011). In the aftermath of crises, banks significantly lost in trading accounts in developing countries, Basel II regulations emerged a number of problems in market risk measurement (Cangürel, 2010). Especially losses on off-balance sheet activities of banks has caused the largest decline in their equity, despite they have capital ratios required under Basel II (Cosimano and Hakura, 2011). There have been many questions about whether appropriate regulations were in place, to permit the appropriate monitoring of risk taking (McAleer, Jimenez-Marin and Perez

Amaral, 2009). BIS introduced to analyze many drafts and respond to the crisis in the end of 2009 November 2010 released the 'Strengthening the Resilience of the Banking Sector' and 'International Measurement Framework for Liquidity Risk, Standards and Monitoring', referred to as Basel III which is to be implemented in 2013 and be fully complied by 2019 (Gu, 2011). The main elements of this new framework, the Bank's common equity is to reach the highest quality (Yardımcıoğlu and Demirel, 2010) The aim of Basel III is to prepare the banking sector for future economic vulnerability by improving to absorb shocks emerged from financial and economic stress, improving risk management and governance and strengthening banks' transparency (Hannoun, 2010). In addition it reduce the destructive effects of the global and systemic banking crisis, by affecting the price and the volume of loans with a combination of risk-based capital and liquidity regulations (Went, 2010).

The recent financial crisis appeared that micro prudential regulation is inadequate to respond international market. Thus, the purpose of developed with Basel III macro prudential regulations are to ensure the stability of the financial system (Georg, 2011). Demirkol and Aba (2012) stated that both macro and micro levels of the reform will gain flexibility and robustness for financial markets. According to Dedu and Nitescu (2012) regulatory instruments may be similar for macro and micro prudentiality although macro prudential regulations are implemented differently. For example; regulatory capital requirements increase to contribute systemic risk and this contribution depends on to the level of risk the institution's balance sheet. Basel III consists of global regulations, also it have brought innovation to protect local banks, contrary to shock the banking sistem. The basis of Basel III is based both Basel I and Basel II, also has made to overcome the shortcomings of both of them (King and Tarbert, 2011). Whilst Basel I and Basel II almost nearly consist of microprudential and bank specific level, Basel III introduces a set of instruments and standards at the macroprudential level, such as a countercyclical buffer, leverage ratio etc.

(Lyngen, 2012). Atkinson and Wignall (2010) considered that a stronger capital framework prevent against another financial crisis and so especially the leverage ratio and the counter-cyclical buffer are very useful in the Basel III. Auer, von Proestl and Kochanowicz (2011) stated that banks may not turn back to levels of profitability before the global financial crisis, but Basel III prepare the banks for the next crisis and will help banks having high performance. According to Thornton and Giustiniani (2011) features of Basel III has provided a macro-prudential strategy for the systemic risk and reduce pro-cyclicality and also Basel III is aimed at the introduction internationally harmonized standards of regulations governing banks' liquidity. Azadinamin (2012) mentioned that all these innovations banks are to strengthening their position in times of economic distress. Caruana (2010) stated that the criteria regarding capital of Basel III are very important for national supervisory authorities, because the bank's risk profil and economic conditions determine to require capital for banks.

Based on various studies examined by the Basel Committee<sup>16</sup>, when banking crises are allowed to have a permanent effect on real activity the estimation of the discounted costs of crises is around 60% of pre-crisis output so each 1 percentage reduction in the annual probability of a crisis an expected benefit per year equal to 0,6% of output and the Committe estimated that different models and methodologies related to Basel III showed crucially reduction in the likely of a banking crises a higher levels of capital and liquidity. Despite the benefits of Basel III requirements, there are some negative sides. Bernabe and Parcon-Santos (2012) stated as follows despite the benefits, higher capital requirements also increase costs. Admati (2010) related that banks' capital requirements increases when also banks' funding costs increase. In his study of Sutorov (2012) pointed out that equity, which used especially by banks, is expensive and managers were uncomfortable using expensive capital for operation. Because of high capital, banks to meet higher required capital ratios, banks decrease the

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<sup>16</sup> BCBS (2010a), "Guidance for national authorities operating the countercyclical capital buffer"

the balance sheet rather than increase their capital assets. Haldane and Madouros (2012) asserted that Basel III is too complex to prevent bank failures and this complexity provides the banks to transfer from one category to another category their products and leads to reduced resilience. Kay (2012) sustained this by saying that this arrangement is to give the impression that 'something is being done'. Santos and Elliot (2012) argued that Basel III implementation will not provide a significant reduction the loan and banks' compliance with the new regulations would harm the economy in the process. Also another criticism followed that, questioning how far the new rules for calculating RWA adequately reflect the actual risks by different models. The main reasons were especially banks using internal ratings methods to increase their capital adequacy ratio and audit practices for the suspicion. (Cannata, Caselline and Guidi, 2012)

Primary purpose of the Basel III described in more detail below;

- **More Qualified Capital;** Under the Basel III, only the highest quality capital which a paid capital to remain in Tier 1 capital or core capital, other some capital items are considered as a deduction when calculating common equity.
- **Increased Quantity Capital;** Common equity ratio, Tier 1 capital ratio and regulatory capital ratio are increased. Common equity will be increased 7%, Tier 1 capital will be gradually increased 8,5% . Rather than 8.5% rate of Tier 1 capital a minimum level, it is required the banks more comfortable movement on some issues.
- **Creation a Capital Buffer;** according to the current state of the economy, it is the amount of additional capital ranging from 0% to 2.5%.
- **Non-Risk Based Leverage Ratio;** This ratio is planned to be formed between off-balance sheet items taken into account

undercertain turn over rates, total assets and common equity. Leverage ratio is predicted 3% and gradually transition is planned.

- **Liquidity Regulations;** The Basel III included two ratio which Liquidity Coverage Ratio and Net Stable Funding Ratio both the minimum level would be 100%. Wide harmonization is targeted process, which last until 2018.

A study performed by Sarkany (2011) concluded that Internationally active banks are most difficult against fragility in financial markets so they need to develop capital and finances it's likely to be more resistant to another crisis.

Banks, regulators and supervisors find to work the most appropriate solution for financial market with capital and liquidity rules in Basel III. Once implemented, the Basel III effects a major change banks' business model from liability management to asset management in international banking industry. These changes are very important for business model and financial structure. Banks end the practice of asset-driven liability management and they increase their market share in the credit markets because will enter aggressively competitive environment (Allen, Chan, Milne and Thomas, 2010). Halden and May (2011) predicted that banks have been encountered various problem during transition of the Basel III implementation. Thus, problems should be determined timely, solutions must be produced accurate, comprehensive and common.

### **5.3.1. Capital Regulations**

Banks' equity is the reference levels in many supervisory and regulatory standards such as; from the analysis of a bank's financial structure to in deciding bankruptcy, from Basel regulations to activity areas (Yılmaz and Tiryaki, 2012). Along with an article written by Modigliani & Miller (1958), the capital structure has been one of the most important issues in the field of finance and capital is the most reliable source to absorb losses for

banks. Değirmenci (2003) stated that if bank capital is strong enough to cover the banks' risks, the bank's financial structure and confidence of customers towards banks is strong. It is considered that regulatory capital deficiency as an indication of failure of banks (Sarkany, 2011). According to Fonseca and González (2010) capital requirements have stabilizing effects. Therefore, the Basel Committee set international minimum capital adequacy, to protect banks against losses, to avoid the negative impact of the fierce competition and to prevent bankruptcy (Gu, 2011). But description of capital was not comprehensive and consistent previous Basel Accords and banks did not ensure clear and consistent information on their capital and this case compromised to absorb banks losses (Amediku, 2011). In the recent financial crisis, the banking system, experienced a significant reduction capital due to losses in assets portfolio (Miu, Özdemir and Giesinger, 2010). Along with the Basel III significantly raise the quality and the quantity of capital and enhancing the risk coverage of the capital framework (Hannoun, 2010).

The fact that Basel III has not changed capital requirements of Basel II framework, but it has developed the risk coverage and capital quality (Gu, 2011). According to Basel III is mandatory to reserve more capital against to high losses. Although the minimum total capital requirements remain unchanged, the components of requirements have changed. As regards the definition of capital is aimed to strengthen the capital focusing transparency and consistency and raising the quality of banks' capital base by means of stricter criteria for the eligibility of common equity Tier 1 (King and Tarbert, 2011 and Cannata, et.al., 2013). Tier 1 distinguishes between two categories; Common Equity and Additional Tier 1.

**Table 5.1. Basel III Capital Arrangement;**

	2011	2012	2013	2014	2015	2016	2017	2018	As of 1 January 2019
Leverage Ratio		Supervisory monitoring	Parallel run 1 Jan 2013 – 1 Jan 2017 Disclosure starts 1 Jan 2015					Migration to Pillar 1	
Minimum Common Equity Capital Ratio			3.5%	4.0%	4.5%	4.5%	4.5%	4.5%	4.5%
Capital Conservation Buffer						0.625%	1.25%	1.875%	2.50%
Minimum common equity plus capital conservation buffer			3.5%	4.0%	4.5%	5.125%	5.75%	6.375%	7.0%
Phase-in of deductions from CET1 (including amounts exceeding the limit for DTAs, MSRs and financials.)				20%	40%	60%	80%	100%	100%
Minimum Tier 1 Capital			4.5%	5.5%	6.0%	6.0%	6.0%	6.0%	6.0%
Minimum Total Capital			8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Minimum Total Capital plus conservation buffer			8.0%	8.0%	8.0%	8.625%	9.125%	9.875%	10.5%
Capital instruments that no longer qualify as non-core Tier 1 capital or Tier 2 capital			Phased out over 10 year horizon beginning 2013						

Source: BIS: Basel III: 'A global regulatory framework for more resilient banks and banking system

Common Equity Tier 1 composed of common stock and retained earnings which must at least 4,5% of a bank's RWA and 50% of a bank's total capital and at least 75% bank's Tier 1 capital. Thus banks' common equity is required to be at least capital ratio of %4,5 and core capital of %6. The difference between of the capital adequacy ratio and common equity is very little in Turkish banks. That's why this topic is important for more European and American banks. Because these banks' capital structures not deemed common equity but contained a total amount of capital is very high (Yardımcıoğlu and Gökçe, 2010).

Additional Tier 1 mostly made up of various types of preferred stock and additional paid and consisting of up to 25% of Tier 1 capital in total. Tier 2 includes various types of subordinated debt and its aims to provide loss absorption.<sup>17</sup>

Basel Committee has added two supplement capital necessities for the trading book; The Incremental Risk Capital (IRC) and the 'Stressed Value-at-Risk'. The IRC is the risk of losses from default and credit risk mitigation. It is calculated using the banking methodology, with a time horizon of less than one year. Their aim is to lead the exposure at risk framework for trading book by observing the securities price movements

<sup>17</sup>BIS: Basel III: 'A global regulatory framework for more resilient banks and banking system

from 10 days to 20 days trading days. Varotto (2011) find that the size of both the IRC and stressed Var should be larger and may push trading book capital up higher than the pre-crisis level because cause real exposure to credit risk.

According to Lastra (2004) , capital adequacy is not only part of modern banking regulation but also is a major strategic element the supervision and regulation. With regard to the of Basel III Capital adequacy regulation is aimed to provide that the credit institutions hold enough capital against unforeseen losses.

Thornton and Giustiniani (2011) stated that capital regulation aims to protect capital the lending institution against unexpected losses. Also higher capital and higher capital ratio is a symbol of trust and reputation for banks in the market (Gu, 2011). To meet capital regulatory mandates, banks decline leverage, reducing equity risk premiums, capital costs and funding expenses.

#### **5.3.1.1.Regulations Related to Strengthening of Capital**

The Committe has created the capital buffer, which acts like a “Shock Absorber”, to measure and monitor between risk capital and current in internal capital adequacy assessment process (Miu, Özdemir and Giesinger, 2010). Capital conservation buffer is intended to be available to absorb losses during times of financial and economic downturns. It is required that banks to hold an additional capital conservation buffer 2,5% of total capital in the form of Common Equity (Brown, 2010, Went, 2010 and Tebogo, 2012). A cyclical capital buffer is aimed to prevent credit expansion depending on the growth rate of the economy (Cangürel, 2010). The new minimum requirement for common equity is phased beginning with 3,5% requirement in January 2013, 4,0% in 2014 and increasing to 4.5% by January 2015. The minimum common equity plus capital conservation buffer is also beginning 3.5% in 2013 increasing to 4.5% in 2015 and 7.0%

as of January 2019. Under Basel III the minimum requirement remained unchanged at 8% and combined with the capital conservation buffer, the total capital requirement will be 10,5% in January 2019.<sup>18</sup> In case of failure to provide capital conservation buffer, banks can resume normal activities, but in such a case Basel III foresaw that bank's profit distribution restrictions at different rates. Thus, banks allocate the capital for capital conservation buffer in case of less than the defined capital by authorities, banks would be able to restrictions on dividend distribution depending on the difference between the two ratios.

Some critics and bankers stated that bank with capital conservation buffer will be reserved more capital and this will decrease the rate of profitability of bank (Sutorava, 2012). A study performed that Atıcı and Gürsoy (2011) showed that Turkish banking system's capital buffer is higher than the European banking system, banks works with capital buffer above the required capital adequacy ratio and especially the recent global crisis, the capital buffer was used as a measure against the crisis.

In the new definition of capital has created a very important innovation in global capital regime. Although procyclicality emergences in times of recession, the main reasons begin in period of expansion (Gu, 2011). With that statement Repullo and Suarez (2009) stated that banks hold a buffer range of about 2% in recession and 5% in expansions periods but these buffers are insufficient for a contraction credit supply in financial stres. Repullo and Suarez (2008), Ayuso et al. (2004), Peura and Keppo (2006) and Lindquist (2003) all find a negative relationship between the cycle and the capital buffer. A study conducted by Kashyap and Stein (2004) expressed that a simple framework for capital regulation and this capital arrangements depended on the state of the economy cycle.

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18-BIS: Basel III: A global regulatory framework for more resilient banks and banking system

In Basel III, the Committee allow to add a counter-cyclical buffer when needed it. Went (2010) expressed the importance of this buffer that when the economy is good more loans volumes and opposite this case the economy is bad in a tightening of lending practices, the credit losses experienced a decrease in the amount of capital in this period. Due to disruptions in capital increases that may be encountered in the business cycle, banks may cause to reduce their lending. Also there may be deviation of price instability, lack of liquidity in the market and shocks in the real economy (Gu, 2011). These disequilibrium and economic recession can cause deepening the banking crisis. Thus, the Committee implementing and releasing the counter cyclical buffer, ranging between 0% and 2,5%, its size has been left to decide a target level national governments.

It is stated that the purpose of the counter cyclical buffer is to be achievement of the broader macro prudential goal of protecting the banking sector during periods of excessive credit growth.<sup>19</sup> According to Repullo and Saurina (2011) with this buffer, banking sectors could ensure the defense of their capital during periods of excessive credit expansion because capital is more expensive and banks made to protect the capital of banks these innovations should have the additional benefit of helping to moderate credit growth. In addition, 'excessive credit growth' could have a significant impact on developing countries' economies. But should be closely coordinated with monetary policy decision-making. Excessive credit growth alongside a contractionary monetary policy may cause adverse consequence (Cosimano and Hakura, 2011). Jokipii and Milne's (2006) in study claimed that high capital can be costly for banks declining profits in a decreasing environment and may restrict their activities.

A study conducted by Bernabe and Parcon-Santos (2012) found that the higher capital requirements imposed by Basel III may have an initial negative impact on GDP so effects of monetary policy may not be visible in the short term.

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<sup>19</sup>BIS: Basel III: A global regulatory framework for more resilient banks and banking system

In order to use the appropriate monetary policy need to be monitored real effect over the long term. Also Gu (2011) stated that if banks already have high capital buffers, regulations regarding the counter-cycle buffer may affect only the low-buffered banks. Also Gu (2011) added that even in high capital buffer banks has seen financial adversities in the recent financial crisis. So, Larson (2011) with respect to the buffer stated that by supporting each other countercyclical buffer and conservation buffer which provides balances of banks' capital levels during periods of increased financial risk.

In addition Basel III enhances the risk coverage in capital requirement. Basel III increased requirements for the trading book, securitization products, counterparty credit risk on OTC derivatives and repos and introduced stressed value-at-risk capital requirements.<sup>20</sup>

### **5.3.1.2.Introducing to Leverage Ratio**

Banks works a highly leverage, although it composed unstable financial structure, because capital is expensive (Locarno, 2011). At the beginning of the 2008 crisis, although many banks and financial institutions had the strong capital structure, was found to be over-leveraged transactions. Walsh (2012) stated that this case, some of the largest financial institutions significantly increased their off-balance sheet exposure and caused of moved onto a build-up of leverage that banks' balance sheets. When the crisis occurred banks were forced to reduce their leverage because significantly increased downward pressure on asset prices, leading to a reduction in capital levels and a contraction in credit availability (Miu, Özdemir and Giesinger, 2010) As result the Committe adopted measure to strengthen single, transparent risk-based capital requirements in Basel III.

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<sup>20</sup>BIS: Basel III: A global regulatory framework for more resilient banks and banking system

This ratio is calculated as the ratio a high quality measure capital specifically -Tier 1 capital and the predominant form of Tier 1 capital - on and off balance sheet exposure; which including derivatives, repos, securitization etc. with certain adjustments to ensure international consistency and it also must have a minimum of 3% of capital of non-capital of non risk-weighted total assets.<sup>21</sup>

$$\text{Leverage Ratio} = \frac{\text{Tier 1 Capital}}{\text{Total Exposure}} = \%3$$

According to Petrou (2010) leverage ratio can be affected by competitive pressures in the financial markets and in such a case financial institutions may struggle to meet the leverage ratio requirements hold high-risk assets and trade in low risk assets. Estrella, Park and Peristiani, (2000) stated that use of leverage ratio can help regulator to assess capital adequacy without the use of complex modeling assumptions, so the leverage ratio can be used as a more complex risk based capital ratio. Leverage ratios are quite important because they are almost costless. Also Larson (2011) stated that leverage ratio serves as a capital floor which banks have some amount of capital to protect against unexpected losses. But Went (2010) stated that banks with new leverage ratio may be forced to reduce the risk weight to meet the higher capital requirements and this can likely reduce banks' ability to effectively and efficiently credit. A study performed by Blankespoor et al,(2012) demonstrated that the relationship between credit risk and leverage gets stronger as assets measured at fair values.

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<sup>21</sup>BIS: Basel III Leverage Ratio Framework and Disclosure Requirements

### 5.3.2.Liquidity Regulations

Liquidity is very important for banks because they use liquidity to meet in the interbank market (Georg, 2011) Liquidity of assets both short and long term liabilities, and total liabilities ratio are always important indicators for banks (Yilmaz and Tiryaki, 2012). Jorion (2009) stated that the bank's capital level is important to obtain liquidity especially during the crisis. According to Hartlage (2012) the lack of liquid assets; which can be converted in to cash a short time, is a threat both well managed and poorly managed in the period of credit contraction. Also a poor liquidity management can lead to unexpected liquidity shortages because has a direct impact on the bank's cost structure and ultimately may decrease the bank's credibility and leading to higher funding costs on capital markets (Schüler, 2013). Diamond and Rajan (2000) and Gorton and Winton (2000) expressed that capital requirements for financial institutions may be social costs because they reduce the ability to create liquidity.

At the beginning of the 2008 financial crisis, although most banks meet capital requirements, they forced to manage the current liquidity (Gideon et al, 2012). During the crisis, deteriorating liquidity conditions have shown the importance of liquidity risk management (Hong, Huang and Wu, 2013). Jorion (2009) argued that with the last crisis has finally understood the importance of liquidity risk, for good risk management. The recent crisis showed that liquidity risk not only meet cash requirements or collateral it occur every time. Walker (2009) stated that banks mismanaged liquidity risk and failed to manage the existing liquid assets. In the aftermath of this crisis, authorities went into action with liquidity regulations to reduce risk in the financial system (Hartlage, 2012).

In 2010, along with the Basel III, the Basel Committe strengthened global liquidity and funding regulations by proposing two standards for liquidity risk; Liquidty Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR). These liquidity ratios aim to strengthen banks' liquidity buffers and liquidity solutions to the problems arising from maturity mismatch (Hong, Huang and

Wu,2013). According to Duttweiler (2009) long-term assets should be funded with long-term financing because the maturity transformation some banks engaged in excessively during the financial crisis and thus short-term liquidity and long-term liquidity separated from each other.

LCR is measure of asset liquidity and is developed to increase the resistance the formation of a bank's short-term liquidity risk with sufficient high-quality liquid assets to the total net cash outflows. The rate of banks stock of high quality liquid assets to total net cash outflows over 30 days must be more or equal to %100. LCR the minimum elements will be effective from 2015 and will be set at 60% from January 2015 and raised by 10 percentage points each year until it reach %100 in January 2019.<sup>22</sup> In his article Hartlage (2013). LCR can work to reduce the goals of effective liquidity and can lead to systematic risk activity.

**LRC is formula;**

$$LCR = \frac{\text{Stock of HQLA}}{\text{Total Net Cash Outflows}} \geq 100\%$$

Net Stable Funding Ratio ( NSFR) is a measure of funding stability and developed to increase banks' resistance with more stable source funding over a one year period. Stable funding is defined as the portion of those types and amounts of equity and liability financing expected to be reliable sources of funds over a one-year time horizon under conditions of extended stress. The ratio must be greater than 100%.<sup>23</sup> NSFR will have significant impact on the banking sector.

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<sup>22</sup>BIS: Basel III: International framework for liquidity risk measurement, standards and monitoring (2010)

<sup>23</sup>BIS: Basel III: International framework for liquidity risk measurement, standards and monitoring(2010)

### **NFRS is Formula;**

$$NFRS = \frac{\text{Available Amount of Stable Funding}}{\text{Required Amount of Stable Funding}} \geq 100\%$$

Huang and Wu (2012) examined the relationship between liquidity ratios and bank failures and this study showed that in US the failure of commercial banks negative correlation with NSFR while positive correlation LCR. Because these ratios emphasize the difference between liquidity assets and stable funding, high funding reducing the probability of bank failure, accumulating liquidity increases the probability of bank failure. Went (2010) stated that banks to meet the new liquidity regulations, will be forced to increase lower-yielding liquid assets in their balance sheet removing less liquid and higher-yielding assets. In another study of Wu and Huang (2013) argued that in the crisis of 2008, systematic liquidity risk was a major cause of bank failures rather than idiosyncratic liquidity risk.

Also they stated that the new Basel III standards on liquidity risk could be inadequate thus to enhance the safety and soundness of banking system, an effective systematic risk should be given importance both systemic risk and liquidity risk.

In addition bank transparency is very important liquidity risk management. To improve transparency of banks the Committee requires items that all banks in their reports; the balance sheet will contain a full reconciliation of regulatory capital elements; separate disclosure of all regulatory adjustments; a description of all positive and negative limits that the capital has been subject to; when banks disclose any ratios used, they also need to provide explanation how these ratios have been calculated (Taskinsoy, 2013).

A study worked by Mansson and Radström (2011) defined that banking transparency should include requirements. The degree of information-gathering activities by investors and information dissemination in the country. They also stated that increase transparency, reduce fragility in the

banking system. Ratnovski (2013) has emphasized the relationship bank transparency and liquidity and he stated that is required improving transparency to give the desired effect new liquidity requirements and access to market refinancing. For that the scope to use net stable funding ratios to increase the effectiveness of liquidity requirements. In the study by Bliss and Flannery (2002) empirical evidence supporting the importance of transparency has been found two components; to measure the bank's financial health the ability of investors and investor's ability to essentially influence and make changes. Nier and Baumann (2006) stated that transparency is direct the banks to hold more capital buffer so banks taking low risk, they reduce the probability of default. A positive relationship between mandatory disclosure requirements and international banking system stability in the report by Tadesse (2006) said that banking transparency should be defined extensively to include information gathering activity by investors and the extent of information dissemination in the country. In this study Tadesse (2006) showed strong evidence that increasing transparency reduces in the banking system fragility.

A study by Sarkany (2011) identified that compared to capital, liquidity ratios does not cause for banks regulatory difficulties. But the study by Schüler (2013) reported that, especially having diverse business activities due to the complex structure of large banks are required to make comprehensive studies on the implementation of new liquidity ratios. Van den Heuvel (2008), concluded that liquidity is very important for banks a standard growth and for Basel III capital requirement is expensive banks can face creating liquidity problems.

**Table.5.2. Basel III phase-in arrangement**

	2011	2012	2013	2014	2015	2016	2017	2018	As of 1 January 2019
Leverage Ratio		Supervisory monitoring			Partial min 1 Jan 2013 – 1 Jan 2017 Disclosure starts 1 Jan 2015			Migration to Pillar 1	
Minimum Common Equity Capital Ratio			3.5%	4.0%	4.5%	4.5%	4.5%	4.5%	4.5%
Capital Conservation Buffer						0.625%	1.25%	1.875%	2.50%
Minimum common equity plus capital conservation buffer			3.5%	4.0%	4.5%	5.125%	5.75%	6.375%	7.0%
Phase-in of deductions from CET1 (including amounts exceeding the limit for DTAs, MSRs and financials)				20%	40%	60%	80%	100%	100%
Minimum Tier 1 Capital			4.5%	5.5%	6.0%	6.0%	6.0%	6.0%	6.0%
Minimum Total Capital			8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Minimum Total Capital plus conservation buffer			8.0%	8.0%	8.0%	8.625%	9.125%	9.875%	10.5%
Capital instruments that no longer qualify as non-core Tier 1 capital or Tier 2 capital					Phased out over 10 year horizon beginning 2013				
Liquidity coverage ratio	Observation period begins					Introduce minimum standard			
Net stable funding ratio		Observation period begins						Introduce minimum standard	

Source: BIS: Basel III: 'A global regulatory framework for more resilient banks and banking system

### 5.3.3. Appropriate Risk-Weighted Assets

Although Risk Wights Assets (RWA) is not a new topic, it has become important due to increased capital and liquidity requirements, higher capital ratios within Basel III (Auer et al., 2012). The fact that Basel III did not change risk weighting assets in Basel II, including the same risk weights, (N.M., 2010) so can be seen as an extension of the “Basel II RWA” but the density of the risks have changed. Basel III added counterparty risk. Consequently banks’ risk weighted assets increase and higher RWA requirements are needed. Hannoun (2010) stated that banks reserve capital for trading book assets four times greater than the Basel II. Basel III has been created for the detection of complex financial transactions especially of a more comprehensive risk such as; counterparty credit risk, trading book transactions and securitisation exposures (Cannata, Caselline and Guidi, 2002). During the recent crisis, clearly seen that securitization transactions are depended on the bank's current liquidity structure and along with Basel 3 has increased the capital adequacy by adjusting securitizasyon exposure and also liquidity has been created that taking into account the securitization and

market disruptions in term of the loan (Went, 2012). However, these off-balance assets are not comprehensively covered the RWA (Gu, 2011). Basel III works to balance these weights, in those intances where a bank determines that the inherent risk of such an exposure, particularly if it is unrated, is assigned, the bank should consider the higher degree of credit risk in the evaluation of its overall capital adequacy.<sup>24</sup>

Schlickenmaier (2012) pointed out that when an asset's risk increased, the banks for the risk assessment, increasing the capital charge of asset and should take into consideration diminishing returns. In practice, such an application may be difficult, because banks act in accordance with their own advantages to increase profitability (N.M.,2010). According to Nadal and Serrano (2012) RWA has become more important than ever in the risk assessment, for tighter capital requirements. Auer et al.,( 2012) stated that RWA may be more effective fulfilling legal requirements in Basel III and this also helps to increase profitability. Because effects of RWA can be reduced in many ways.

#### **5.3.4.Counterparty Credit Risk**

Counterparty credit risk has become one of the highest-profile risks facing participants in the financial markets. When the first signs of the crisis appeared, in order to increase the liquidity the sale of securitized products, but this did not work.

Despite taken measures, these products was reduction (Jenkinson, 2008). In the initial stages of the crisis, the reduction of the interest in financial papers, and then increasing, it is indication that investor confidence in the financial system. Later, Lehman Brothers declared bankruptcy has emerged that crisis related to financial product especially second lien loans.

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<sup>24</sup> BIS: Basel III: A global regulatory framework for more resilient banks and banking system

This situation was out of investors from financial paper (Garriga and Sekeris, 2008). During the financial crisis counterparty risk has emerged as the most important factor driving financial markets and contributing to the crisis (Arora, Gandhi and Longstaff, 2012). Basel III has developed the measurement of counterparty risk which including higher capital requirements determined by stress tests, in order to give more stability to the financial system. Cangürel (2010) stated that based on banks' stress scenarios and historical data and to calculate the counterparty risk are intended to hold additional capital.

It is considered that counterparty credit risk is one of the fundamental elements of the 2008 crisis (Ghamami and Zhang, 2013). In September 2008, bankruptcy of Lehman Brother's was such a major counterparty credit event in the financial markets. Arora, Gandhi and Longstaff (2010) stated that various firms began to price their counterparty credit risk after the Lehman Brother's bankruptcy. Counterparty risk is similar to other forms of credit risk which the cause of economic loss is the borrower defaults (Canabarro and Duffie, 2003). To provide stability to the financial system, Basel III increased counterparty credit risk practices which including Pillar I capital requirements determined by stress tests. The most important of them increase incentives for OTC transactions through centralized clearinghouse (Went, 2010). According to Haldane and May (2011) the most important features of Basel III that is strengthened in reduce systemic risk. A study performed by Dedu and Nitescu (2012) pointed out that increasing capital aganist counterparty risk, reducing the procyclical trend, providininentives for OTC derivatives because systemic risk is reduced in financial markets.

## **6.CREDIT RISK**

### **6.1.Definition of Credit Risk**

Risk is the most important factors in determining asset prices and asset return (Berg, 2010). Credit risk is the oldest risk form in financial market

has been traditionally defined as default risk, i.e. the risk of loss from a borrower/counterparty's failure to repay the amount owed to the bank on a timely manner based on a previously agreed payment schedule (Anbar, 2006). Credit risk is considered as under bank loan agreement borrower's credit risk to pay back the bank and it also known as basis risk and asset quality risk which is a cornerstone of financial risk management (Dimitriu, Caracota, Oprea and Scriciu, 2011). Also credit risk is the most serious and dangerous of all of risk facing banks and so credit risk the dominant source of risk the banks and the subject of strict oversight and policy debate (Pesaran et al., 2005).

Credit risk management is one of the most important areas of expertise in the banks and credit risk measurement is aims to increase a bank's risk adjusted rate of return by maintaining credit risk.<sup>25</sup> The main activity of banks is lending, therefore credit risk management is also important for them (Dimitriu and Oprea, 2011). Banks loans associated with the risk and a possible loss, so banks use a variety of credit valuation model to assess loan applications (Mileris, 2012).

Banks calculate that are implementation statistical method probability of default (PD) and in the event of this possibility, calculate how much they will encounter losses. PD relate to customer's creditworthiness while LGD calculate how much loss will meet guarantees potential losses (Güvercinci, 2011). Credit is the most main of activities for banks. The decision about creditability of the borrowers may not always to be true by bank or over time may changes depending on various factor (Alkin, Savaş and Akman, 2001). The importance of credit risk management is rising with time because of some reasons such as; economic crises and stagnation, company bankruptcies, infraction of rules in company accounting and audits, growth of off-balance sheet derivatives, declining and volatile values of collateral, borrowing more easily of small firms, financial globalisation and BIS risk based capital requirements.

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25-BIS: Principles for the Management of Credit Risk (2000)

Banks are exposed to credit risk in ever-increasing in diversity financial instruments which including acceptances, interbank transactions, trade financing, foreign exchange transactions, financial futures, swaps, bonds, equities options and in the extension of commitments and quarantees and the settlement of transactions.<sup>26</sup> The emergence of new financial products has increased the importance of credit risk in financial markets (Altman, Narayanan ve Caoutte, 1998). Banks may occur each credit risk for, they should make accurate measuring and should allocate sufficient capital so they can minimize credit risk which may face.

A credit agreement is based on counterparty and certain conditions. Banks enter the credit of the customers relationship failure to comply with contractual requirements partially or completely fulfill its obligations as a result of banks may suffer losses or gains may be reduced.<sup>27</sup> Credit events compose of kind of credit linked events such as; default events, changes in credit quality and variations of credit spreads (Bielecki, 2002).

An effective credit risk management in banks to include criteria to be considered<sup>28</sup>;

- Establishment of an appropriate credit risk management
- Reliable implementation of lending operations
- Maintaining an appropriate credit administration, measurement and monitoring process;
- Ensuring adequate controls over credit risk.
- The role of surveillance and supervisory.

Credit risk management is to keep the loan portfolio of the risk acceptable levels in banks ( Mileris, 2012). The other objective reported by Korkmaz et al., (2004) credit risk management is to maximize the bank's risk-adjusted return, managing the risks faced the bank. .

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<sup>26</sup>-BIS: Principles for the Management of Credit Risk (2000)

<sup>27</sup>-BDDK, (2006) Bankaların İç Sistemleri Hakkında Yönetmelik 26333 Sayılı Resmi Gazete

<sup>28</sup>-BIS: Principles for the Management of Credit Risk (2000)

In the recent crisis, access to any financial resource is more difficult and more expensive. Therefore banks are carefully assessed a proper management of credit risk is absolutely necessary (Dimitriu and Oprea, 2009). Banks began to allocate credit risk according to risk weights with the rules and regulations of the Basel Accords, banks devote more capital high-risk groups, less capital lower risk groups (Yardimcioğlu and Gökçe, 2010). According to Oktay and Temel (2007) credit risk management has become more complicated for banks recently because using new financial instruments, financial liberalization, increasing competition among financial institutions, development of credit market, spreading of the derivatives markets.

Ayan (2007) stated that except for loans issued by banks especially in recent years increased the inter-bank money market transactions, foreign exchange transactions, guarantees and sureties, derivatives, bond market operations operations are also elements of credit risk faced by banks. Because this risk factors creates a large part of banks' balance sheets, credit risk is very important for banks.

## **6.2. Credit Risk and Macroeconomy**

Especially in the recent years, re-regulation, financial innovation and internationalization have changed financial markets significantly. One of the most important questions how these changes will affect the credit risk in the macroeconomy (Bernanke, 1993). The changing economic conditions effect banks' risks and the results of operations so it is important to determine the macro-economic indicators the bank's financial condition and credit risk changes (Mileris, 2012). Thus, the changes in the value of the credit portfolio assets in banks clearly depends on macroeconomic dynamics such as; GDP, inflation, interest rates, money supply, industrial production index, current account balance (Schuermann, 2003 and Mileris, 2012) and Festic, Kavkler, Repina (2011) affirm that macroeconomic changes alter quality of

the credit portfolio of banks. A strong and flexible credit sector is the foundation of sustainable macro-economic growth (Lacarno, 2011). For example; GDP is considered as very important macroeconomic indicator for banks performance, during recession the quality of loans decreases and companies or customers are forced to use credit at higher margins or do not use credit. This situation show us a positive relationship between economic growth and credit spread. A study performed by Kavcıoğlu (2012) stated that showing a steady development of credit in Turkey between 2002-2008 but after 2008 financial crises a reduction in a credit growth showed that the relationship between the development of the credit and economic conjuncture. In May 2013, Federal Reserve Bank of the USA (FED) to reduce its asset purchase program descriptions after rising with the exchange and interest rates was observed decrease focused on individual loans in credit growth rate.<sup>29</sup>

In years 2003-2006 using CDS spreads of Brazil, Mexico, Colombia and Venezuela relations between the credit risk of these countries analyzed by Kang ve Kim (2007) found that countries with low credit scores affects countries with high credit rating and there are differences in the degree of continuity the volatility of these four country and volatility continuity is negatively correlated with credibility of countries. Authors asserted that countries with high credibility which spend a faster recovery process is more resistant to macroeconomic shocks (Camgöz and Sevgi, 2008).

A study on credit spread done by Chan, Wang and Tu (2011) identified that country spreads increased during crisis and this increase are negatively proportional to the credibility of the country. In this study they determined that in times of increased financial stress, spreads of countries with low credibility has more increased and with same countries have same mobility.

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29-[http://www.bddk.org.tr/WebSitesi/turkce/Raporlar/TBSGG/12779tbs\\_genel\\_gorunumu\\_aralik\\_2013.pdf](http://www.bddk.org.tr/WebSitesi/turkce/Raporlar/TBSGG/12779tbs_genel_gorunumu_aralik_2013.pdf)

In the period 2009-2010 in the European banks increase of doubtful and non-performing loans analyzed by Mileris (2012) stated that it was very important to understand the impact of macroeconomic conditions during this period and his analysis confirmed that due to quality of the loan portfolio is strong economic conditions, banks for credit risk is important in systemic risk factors.

Mishkin (2001) stated that if the bank suffers losses due to disturbances in the balance sheet and therefore there is a reduction their capital either restrict credit facilities or increase their capital. But on balance disorders that make it difficult for capital increase they choose to reduce credit, this reduces the economic activity even leads to contraction of the economy. Also macro-economic indicators include factors that influence bank credit risk-taking decisions to both corporate and household sector (Pesola, 2011) Correspondingly a report issued by Derbali (2011) argued that a positive between inflation and bank's profitability. High inflation rates create high credit interest rates and this provides high returns for banks. Derbali (2011) continued that but if it is not expected level of inflation and lending rates of banks may increase costs and may adversely affect their profitability. After all these descriptions we can say that directly related to credit risk analysis, whether or not macroeconomic variables are very important.

## **7. CREDIT RISK AND BASEL III**

### **7.1. Focus on Credit Risk in Basel III**

For the stability of the banking system, the right questions for Basel III is whether increase bank's ability to measure credit risk (Schlickemaier, 2012). The fact that Basel III did not change credit risk measurement, which is defined in the Basel II, it making some improvements (Gu, 2011). Committee focused on the importance of strengthening bank capital in the Basel III. Kostak (2012) stated that although Basel III bank regulations a new scheme is primarily concerning banks, borrowers, who borrow loans

from banks big or small all, will be affected by these regulations. He continued that although at first glance the Basel III regulations did not appear related to on credit risk, its contained on capital adequacy, especially the "credit risk assessment" regulation would directly affect borrowers. In study of Varotto (2011) has stated that higher capital will be more expensive to finance the operations of the bank and the cost will pass the borrowers, who are forced to use loans, due to the restriction of credit facilities.

In the recent crisis, acces to any financial resource is more difficult and more expensive. So banks are carefully assessed a proper management of credit risk which is absolutely necessary. The causes of exit of the recent crisis, credit risk management is deficiencies and credit risk faced the dangers. Especially in US, taken against the excessive risk were encountered with regulatory failures in the financial system (Kahn, 2008). These problems made it difficult to evaluate the risk level. According to Demyanyk and van Hemert (2008), credit quality deterioration began before 2007, but the housing price fluctuations, this issue has taken a back seat. Basel committee, along with the Basel III, developed some minor, other more radical reforms about the banking sector supervision and regulation. Mileris (2012) stated that Basel III seek to increase the resilience of the financial sector against possible adverse scenario in the economy and motivates to develop models of credit risk assessment depending on the economic cycle. As mentioned above, these; introducing a global liquidity standard; imposing larger capital requirements on systemically important banks; shifting to forward looking provisioning practices; introducing a countercyclical buffer and a conservation buffer and complementing the regulatory minimum capital requirements with a leverage ratio that curtails banks' risk appetite during expansions. (Girault and Hwang, 2010)

With these new capital regulations Committe aims to create control mechanism during periods of excessive credit expansion when reducing credit exposure and potential credit losses through stricter credit approval processes and potentially through lower limits especially in regard to bank

exposures (Auer et al, 2011) Cangurel et al.,(2010) stated that related to liquidity and capital innovations are not substitutes for each other, applying one facilitates the administration of other. But they also stated that additional capital and liquidity requirements will have a negative impact on the credit, because aiming high profitability of banks will raise the cost of credit. As stated in the following way similar Elliot (2010), because banks hold extra capital and more liquid assets, unfortunately costs will increase and this case will be reflected in credit facilities and will reduced availability. Miu, Özdemir and Giesinger (2010) pointed out that banks increased cost of capital and cost of borrowing, to be more costs for credit using and can cause a decrease in loans. Also they stated that decrease in the use of bank loans, the return on equity is reduced as well. In addition Basel III measures to reduce credit risk include higher Risk Weight Assets (RWA), the new Credit Value Adjustment (CVA) charge, identification of Wrong Way Risk and upgrading stress test. Dedu and Nitescu(2012) considered that Basel III may improve Var method. Because banks will reserve more capital for counterparty risk, increases the confidence level of own capital measurement models. These changes are designed to strengthen the ability of banks to manage risk and to minimize the impact adverse events and exposure to risks (Mooney, 2010). Because risk management models has shown serious deficiencies in the recent crisis so their empowerment is very important in terms of risk management (Jorion,2009). Haldane (2009) point out that banks failed to stress test in crisis, because they don't have the tools to do, especially large banks did not significantly perform stress tests because they considered that they 'were too big to fail.' To derive the stress scenarios which use the standard time-series study Loffler (2008) found that deficiencies in traditional risk model approach played an important role in the formation of the financial crisis. The fact that this model did not fail, perhaps risk managers failed to using these models, perhaps bank executives did not respond to the signals their risk management units produced. He also stated that the actual changes include standard time series models can give accurate estimates and can help to

prevent future crises. Jorion (2008) conclude that in the recent crisis, risks models failed because of structural and regulatory changes in the capital markets is not known exactly and such risks are not suitable to formal measurement. These descriptions explain that the Committe along with the Basel III, why risk models are refreshed for credit risk measurement.

Along with Basel III, banks would allocate less capital to low-risk group where a high capital to high-risk group depend on economic conditions. About this situation Yardımcıoğlu and Gökçe (2010) asserted that especially banks described as high risk group; Small and Medium Enterprises (SME) with limited credit facilities would shrink even further and would increase the cost of credit for SMEs.

In Basel III still provides the Standardized Approach by credit rating agencies (CRA), if their risk weights are appropriate, banks will use the standardized approach. In a sence, Basel III converts the standart approach into a 'modified IRB' approach, because in the standard approach banks do their own risk assessment in Basel III. If banks choose the IRB Approach will continue in a similar manner in the Basel II a risk assessment of an entity, perhaps using valuation given by CRA can support their risk assessment.<sup>30</sup>

Dedu and Nitescu (2012) stated that a stress test on the VaR will increase the risk coefficients which used by banks internal models for detemine counterparty risk in Basel III.

Schlickenmaier (2012) stated that Basel III's rules on measuring credit risk and credit risk assessment similar to Basel II and Basel III's rules needs improvements. He also added Standardized Approach, should terminate CRAs or must find a way to configure CRAs measurement models.

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<sup>30</sup>-BIS: An Assessment of the Long-Term Economic Impact of Stronger Capital and Liquidity Requirement

According to Atkinson and Wignall (2010) IRB Approach there aren't any changes the main features and for credit ratings are used again CRAs but the banks estimating Probability of Default (PD), Loss Given Default (LGD) and Exposure at Default (EAD) estimating PD will be able to predict potential risks, depending on the conjuncture. The capital requirement for covering credit risk correspondent to the expected loss, this is calculation by formulation;

$$EL = PD * EAD * LGD$$

A study on credit risk by performed by Gu (2011) similar mentioned that Basel III does not focusing on changing the credit risk measurement in Basel II, but it increasing stress level and making some improvemets related to the measuremnts of PD and EAD which are estimated the credit losses by banks when needed.

## **7.2.Effects of Basel III on Macroeconomic**

The recent financial crisis experienced in the U.S. economy spread to with the contraction in credit and commercial channels in international markets, had a negative impact on economic growth, employment and other macroeconomic indicators (Artar and Saridoğan, 2012). Therefore studies related to Basel III generally have focused on its macroeconomic effects. Strict control rules of the Basel III effects the economy with the rising cost of financing and reduction of the credit facilities (Locarno, 2011). In additon Tebogo (2012) stated that strict rules are important for the stability of the financial system because it determines the asset value adjustments effect mitigating the financial institutions continued risks.

Basel Committee found that analyzing the long term effect of the Basel III framework positive on the economy.<sup>31</sup> Basel III is a series of measures to make more flexible the banking system arising from procyclicality of financial shocks. Generally, aims to protect the stability of the macroeconomic in the period of credit expansion (Went, 2010). If we consider mainly, the three basic elements are replaced by Basel III; increasing the minimum capital ratio, increasing the quality of the capital and liquidity requirements (Dedu and Nitescu,2012). These elements increased capital and liquidity levels of the banking systems that is expected to prevent frequent and intense financial crisis (Bernabe and Parcon-Santos, 2012). Based on various studies examined by BSBC (2010) showed that raising capital and liquidity levels will provide to reduction banking crisis.<sup>32</sup>

Unlike other sectors, the banking sector's activity is based on credits which affect the financial results of banks (Mileris, 2012). With increasing capital requirements also increase the costs of banks. Therefore will have a negative impact on real economy ( Mansson and Radstrom, 2011). Kùlahi et al., (2013) stated that increase the capital requirements, banks' activities of their surroundings, and this would affect the country's economy growth rate. They also continued that decreasing profitability of banks with increase capital will require less capital to riskier assets and this case will cause to decrease the volume credit.

A study performed by Angelina et al., (2011) asserted that strict regulatory standards and increasing capital can lead to reduce the level of output in the economy. Another study on capital requirement performed by Slovik and Cournède (2011) found that increase in capital, will reduce GDP. Similarly, a study done by Lacorna (2011) expressed that increase of capital ratio will lead to reduction in the annual growth rate. The OECD (2011) working paper<sup>33</sup> on "Macroeconomic Impact of Basel III" estimated the medium-

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<sup>31</sup>-BIS: An Assessment of the Long-Term Economic Impact of Stronger Capital and Liquidity Requirement

<sup>32</sup>-The effects of the Basel III on each country's the banking system is analysed by the BCBS's QIS ( BCBS,2010b)

<sup>33</sup>-OECD (2011), "Macroeconomic Impact of Basel III" Economics Department Working Papers No. 844

term impact of Basel III implementation on GDP growth is in the range of negative  $-0.05$  to  $-0.15$  percentage point per annum. In addition, the increase cost of capital will lead to increase rates of interest and no one wants to borrow.

Especially increase the cost of credit will negatively affect economic growth and decreased volume of provided loans (Sutorova, 2012). Jaffee and Walden (2010) stated that Basel III reduce systemic risk already especially counterparty risk is designed to improve systemic risk and a response to the 2008 financial crisis (Dedu and Nitescu, 2012). According to Went (2010) Basel III's long-term success depends on the political and regulatory authorities will to implement macro-prudential principles.

Locarno (2011) stated that the effects of the Basel III on each country's the banking system and the real economy relate to current capital and liquidity requirements rather than the requirements of Basel III. Another point related to the implementation of Basel III, is unlikely to occur the 'Regulatory Arbitrary'.<sup>34</sup> To be successful in a global sense Basel III, All regulatory and supervisory must be global coordination, because that may be case gaps in legislation between countries arising from the exploitation of loopholes and controls to countries with less arbitrage.

### **7.3.How to Respond Banks Basel III**

Banking sector is the center of the financial sector and diversification of financial products, the rapid development of technology leads to changes in the structure of the its. These changes affect banks' credit portfolios, their position is the link for in the marketplace and is to diversify their operations (Mermod and Ceran, 2011). The banking system performs very important functions in country's financial system therefore for stability of banking system is important to estimate the financial results of the banking system

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<sup>34</sup> KPMG (2011) Basel III: Issues and Implications,

changes in the economic environment (Mileris, 2012).

Banks are exposed to macroeconomic volatility in the global economy (Pesaran et al.,2005). So, it is hard to create a comprehensive response to Basel III rules, though, several bank has already occurred some of the reactions ( Harle et al.,2011).

But, perhaps the most important case Basel III application process, banks will develop strategies and decisions for new standards which are the effects of the country and the world economy. Banks will implement strategies and policies which may include; increasing capital, distributable profit share leaving within the bank, ensuring from capital-intensive activities such as treasury operations transition to requires less capital the banking activities, reduction of the leverage ratio (Ellen, 2010).

According to Eken (2010) firstly banks should focus on capital adequacy targets as well as the main objective that profitability and market share and they should be regulated deficiencies in their structure, so they can create an effective risk management. Külahi et al.,(2013) expressed that implementation of Basel III are expected to create high capital requirement especially in Europe and USA banks.

Cosimano and Hakura (2011) stated that banks' responses to changes the Basel III capital and liquidity requirements will vary from country to country and these changes will be reflected banks. Harle et al.,(2011) pointed out that banks worried about the waste capital and liquidity that may arise from the implementation of new regulations. He continued that therefore banks can take to respond; improve capital efficiency especially in the trading book, and fix suboptimal liquidity-management practices. Some bankers considered that Basel III regulations may be negative effects on their implications and profits. Especially capital buffers significantly will affect the profitability of the banks (Sutorova, 2012). Auer et al (2011) stated that due to the high internal standards and demand of Basel III, banks will receive remedial measure to maintain profitability. That, banks can provide

by adopting their funding strategies, their lines of business, capital structure and level of their risk profile. A negative relationship between higher capital and banks profitability in the study by Sutorova (2012) found that the creativity and dynamics of banks allows to eliminate the effect higher capital and decreased the volume of transactions in the long term risk, provide stable profitability in long term. Auer et al (2011) pointed out banks can protect their profitability especially short-term operational tactics such as the areas of pricing, funding and asset restructuring. Mishkin and Eakins (2008) concluded that the equity holders in low capital bank would get return more than the equity holders in high capital so the banks owners do not want to hold too much capital. Went (2012) questioned that do the positive effect of the risk premium can be compensated with increasing capital costs, low leverage and low profitability in the banking system. Also he stated that reduction of leverage, risk-sensitive deposit insurance premiums and interbank funding of cost would likely reduce, the effect of this decrease will occur as demand high liquidity assets and higher cost of equity capital. Also banks should avoid complacency. Caruana (2010) stated that banks and auditors should endeavor to increase capital buffers because ensure a sustainable recovery from the financial crisis and applications for changes and Pillar III plays an important role protection against complacency.

## **8.THE ECONOMIC SITUTATION IN TURKEY**

### **8.1.Overview of the History of Turkish Economy**

From the second half of the 1980s, began international capital flows. With the impact of technological development, capital flows significantly increased in the 1990s. Middle-income countries began to implemented policies that facilitating the inflow of foreign capital. Thus appeared that providing the opportunity to international investors portfolio diversification "emerging markets". In 1989, Turkey has also liberalized capital movements. According to Celasun (2002) there are behind the decision to liberalize external financing, by duplicating inflow of external resources the economic stimulus and increasing public spending and real wages in Turkey.

An intensive economic crisis has been experienced a period in 1990s in Japan, South Korea, Indonesia, Russia, Argentina and Turkey. Especially the financial sector has been deeply affected in these countries. (Yayla, Kaya, 2005) After 1990, the banking crisis and a currency crisis, has been decisive in Turkey (Karaçor, 2006). In 1991, Turkey's economy with the Gulf Crisis has faced a tough external shocks. During this period, a direct impact on overall economic performance experienced a significant decline because a sudden stopped in capital flows, regional trade stopped, such as the decline in tourism revenues. The general level of prices, the exchange rate and the interest rates rapidly increased in 1990s (Toprak, Demir, 2001) when macro-economic instability, high public sector deficits, the effects of public sector banks, the banking sector adversely affected. As a result of this process; the banks was confronted with structural weaknesses such as; lack of equity in banks, the public banks high share in the sector, insufficient internal control and risk management, aganist market risk sensitivity and fragility.

Taşkinsoy (2013) stated that thanks to work of the BRSA, Turkish Banks remain flexible aganist fragility during financial crisis and this has provided

the global investor's confidence. After the 2001 crisis, Turkey has continued to follow the path with the strict discipline with a vigorous capital adequacy ratio of the strong banking system, sound public finances, low net public external debt (Batirel, 2008). According to Kavcıođlu (2012) the recent financial crisis had limited impacts on the Turkish finance sector and particularly strong stance of Turkish banks, experiment of 2001 crisis and after its the new regulations are introduced by BRSA. anakçı (2009) stated that Turkey in recent years through increased productivity and competitiveness that integrates with the world economy was not able to be affected by such a crisis and negative and slowing global growth of international capital flows has also affected Turkey. Also Yörükođlu and Atasoy (2010) stated that although the Turkish banking and financial sector in 2008 crisis remained relatively robust, the real economy is significantly affected, especially in international trade. Tiryaki and Yılmaz (2012) concluded that considering the economic crisis in Turkey, caused generally national scale and financial instability and since the 2001 crisis, Turkey's robust financial stability affected by global collapse. Hi (2009) stated that global financial crisis and global recession caused some problem in Turkish financial system, but it has not led to a financial crisis. The effects of the global recession was reflected as recession in the Turkish economy.

To soften the impact of the global crisis in Turkey, have been taken various measures which including; liquidity support, tax and premium support, support for the production and export credit and guarantee, new investment incentive legislation. Objective of the measures taken by the government is to increase domestic investment, capital inflows from abroad, providing employment, to increase consumer spending and production and export of SMEs (Uygur, 2010, Türel and Voyvoda, 2010, Özsoylu et.al., 2010).

From the second quarter of 2013 because of the uncertainty regarding the global monetary policy, from developing countries, including Turkey, which has been led to capital outflows.<sup>35</sup>

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<sup>35</sup>-TCMB, Finansal İstikrar Raporu, Kasım 2013, Sayı 17

The same period, due to some improvements both globally and domestically, downward and a wavy movement has experienced in the Turkish financial markets. In this movements has effective the Fed's exit strategy from the expansionary monetary policy related to uncertainties and geopolitical risks.<sup>36</sup>

## **8.2. Banking in Turkey**

The banking sector have a large share in the Turkish economic system. Although, banks involved in all aspects of financial operations and been responsible for the development of the financial system Turkish banking sector is relatively small compared with developed economies. (Önder and Özyıldırım, 2011).

Turkish Banking System, began the globalization after 24 January 1980 (Toprak, Demir, 2001). With the decisions of 1980, firstly bank interest rates later all interest rates was released. Also the banking sector was faced with the competition for the first time in 1981. In 1980-1982, the domestic financial liberalization started with the decisions taken. But because of the weakness of the legal infrastructure has experienced the process called bankers' crisis. After 1989, high public sector deficits, high domestic interest rates, rapid increases in short-term capital inflows and (Kibritçioğlu, 2001).

In the 2000s the banking sector, increased sensitivity to interest, exchange and liquidity (Boyacıoğlu,2003). In November in 2000, the crisis erupted (Boyacıoğlu, 2003) existing macroeconomic imbalances, insufficient capital, lack of good supervision and oversight mechanisms (Gürel,2012. Alper and Onis (2003) argued that weakness in the regulation of both public and private banks contributed significantly to the emergence of crises in the case of Turkey. Resulting from insufficient liquidity as a result of the crisis, increase in interest rates, has been a significant grade, banks' financial structure corrupted (Boyacıoğlu,2003).

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<sup>36</sup>T.C Maliye Bakanlığı, Yıllık Ekonomik Rapor,2013

Turning foreign investors their portfolio liquidity, living short-term serious capital outflow from the Turkish economy, DEMİRBANK has led to the sinking (Gürel, 2012). After the crisis had began in the banking sector in November 2000, the currency crisis occurred in October 2001 (Karaçor, 2003). The Turkish financial system experienced another big disruption in October 2001. A fixed Exchange rate was abandoned and a flexible Exchange rate system was adopted. As a result of this situation; TL devalued 50%. There was a huge loss of confidence in financial markets (Saltoğlu, 2012).

In the period after the crisis, the collapse of credit in his study worked by Civcir (2003) identified that credit contraction stemmed from both the contraction in credit supply and the decrease in loan demand and this main reason was the lack of well-functioning banking system.

In the crisis years of 2000 and 2001 not a good inspection and supervision authorities, there was a bad risk management in Turkey (Gürel, 2012). Bredenkamp, Josefsson, and Lindgren (2009) argued that Turkey had to create a strong economy, because win the confidence of international investors and solve immediate financial problems after the 2001 crisis. Firstly, banks gave importance to risk management in Turkey (Anbar,2006) and an independent banking supervisory authority called the Banking Regulatory and Supervisory Agency ( BRSA) was established (Saltoğlu, 2012). With establishment the BRSA, which was made to adapt the Basel's principles laid. The purpose of the BRSA audit, risk management, risk measurement and credit rating practices and principles in the fields of banking is adapted to Basel regulations<sup>37</sup>(Kuzu,2013). Thus, the Turkish Banking System, harmonized international standards of measurement and inspection and transparency are prominent. For this, BRSA was released 'Bank of the Regulation on Internal Control and Risk Management System' in 8 February 2001.

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<sup>37</sup>In Turkey, according to the 1988 Basel capital adequacy standard of the first embodiment has been published in the Resmi Gazete on 26 October 1989

BRSA helped to provide the Turkish macroeconomic balance. Thus, banks establishing an effective internal control system and managed to encountered risk. After the crisis 2000 and 2001, BRSA restructured the sector, became a model to many countries (Aras,2012). Saltoğlu (2012) stated that protective and careful measures taken by BRSA has led to succesful restructuring the Turkish economy especially a good coordination with Turkish Treasury and Turkish Central Bank (TCMB). According to Erdilek (2008) under the regulations of the BRSA Turkish Banking Sector has become more efficient and competitive and with these features has attracted the attention of foreign investors.

After the 2000 and 2001 crises the strong recovery in the Turkish Banking Sector, one of the most important developments is the increase of the capital of banks ( Saltoğlu, 2011).

Increase of banks' capital and the introduction of Basel criteria by BRSA have led to development capital adeguacy ratio (İkiz, 2012 and Külahi et al.,2013). After the crisis has also increased the profitability of banks because many inefficient banks output from the market and reduce the probability of default and increased inflows of foreign money (İkiz, 2012). According to Yüce (2009) after crisis with a comprehensive restructuring changes Turkish banking sector has strengthened against future possible crises.

Following the crisis in 2001 and the restructuring process by showing strong growth Turkish Banking Sector increased the number of branches and staff. At the same time banks' financial structure and risk management systems evolved, the impact of public scrutiny was seen more on banking and financial markets (Conkar, Keskin and Kayahan, 2009).

In 2006, a regulation issued by BRSA by increasing target capital adequacy ratio to 12%, has taken precautions aganist the possibility of a shortage of capital of banks. Especially since half of the year 2011 the taken measures the slowdown in credit growth rate that is caused bank capital adequacy

level remains stable (Külahi et al.2013). In 2001, the main reason for the restructuring of the Turkish banking system is the creation of a structure to ensure compliance with the Basel regulations. Turkish banks have been tried to become European standards, at first, capital standards, including in many areas such as audit, risk measurement and risk management and credit rating.<sup>38</sup>

Starting from the last quarter of 2008 in particular, although unlike many other economies not necessary capital support, global finance developments also have an effect on the Turkish banks and financial sector (Yörükoğlu and Atasoy, 2010). According to Aras (2012) the reasons behind relatively limited negative effects on the Turkish Banking System are a high capital adequacy ratio, a high asset quality, low currency and liquidity risks thanks to successful risk management and effective public supervision, and good management of the interest, counterparty and maturity risks. Tiryaki and Yılmaz (2012) pointed out that Turkish banking system, capital adequacy which came desired level after the 2001 crisis and snags on capital adequacy came across 1994 and 1999-2001 crises. Afşar (2011). In the 2008 crisis, many large and small banks have gone bankrupt and huge losses occurred in the world despite the fact that the Turkish banking system have remained robust with reforms undertaken after the 2001 crisis.

According to Taskinsoy (2013) since crisis in 2001 thanks to work of BRSA, Turkish Banking System has a strong structure against the global financial and economic shocks during a global scale crisis. Artar and Sarıdoğan (2012) stated that after 2000-2001 crisis Turkish Banks recovery and restructuring thanks to financial crisis more easily able to get through, the global financial crisis was felt most in 2009, Turkish banks with an increase in net interest margin and net income have increased their profits. From the period of May of 2013, the Turkish banking system has put hampering a period the Fed descriptions, political tension in the country, especially the

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<sup>38</sup>- BDDK (2004) Sermaye Ölçümü ve Sermaye Standartları nın Uluslararası Düzeyde Birbirine Uyumlaştırılması ( Yeni Basel Sermaye Uzlaşısı)

taken measures to reduce by the BRSA.

According to Arslan (2007) developing Turkish economy and Turkish banks, foreign capital inflows are strengthening ties between Turkish banks and international powers. So the Basel criteria, is important in adapting to new international markets for the banking system. Demirkol and Aba (2012) stated that recent years the impact of globalization with banking and financial sector of growth and the rapid developments in technology led to the emergence of new financial products and assess risk has changed for banks. In this context, measures to be taken has gained an international dimension and increased the importance of Basel I, Basel II and Basel III.

### **8.3.Credit Risk in Turkey**

After 2001 crisis, the banks pay attention risk management in Turkey. Nevertheless the absence of an effective risk management leads to credit risk management encounter problems (Oktay and Temel, 2007). In later periods, ample liquidity and positive macroeconomic indicators have provided an increase the credit in Turkey (Hacıhasanoğlu and Özdemir, 2009). Especially, after 2008 expanding policies implemented by FED and increase Turkey's rating notes also decreased exchange rates and interest rates have led to with developing countries in Turkey, rapid credit growth and decrease the savings rate.<sup>39</sup> After November 2012, sovereign rate increased by the rating agency and commercial loans increased.<sup>40</sup>

Turkish Banking Sector credits including 2002-2011 period are analyzed and how the loans affect economic growth determined by Kavcıoğlu (2012) find that there is a positive relationship between economic growth and loan growth rate. He stated that during the same period Turkish Banks by

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<sup>39</sup>-[http://www.bddk.org.tr/WebSitesi/turkce/Raporlar/TBSGG/12779tbs\\_genel\\_gorunumu\\_aralik\\_2013.pdf](http://www.bddk.org.tr/WebSitesi/turkce/Raporlar/TBSGG/12779tbs_genel_gorunumu_aralik_2013.pdf)

<sup>40</sup>-[http://www.bddk.org.tr/WebSitesi/turkce/Raporlar/TBSGG/11706tbs\\_genel\\_gorunumu\\_aralik\\_2012.pdf](http://www.bddk.org.tr/WebSitesi/turkce/Raporlar/TBSGG/11706tbs_genel_gorunumu_aralik_2012.pdf)

showing significant growth performance, cash loans has significant increased. A study performed by Avcı (2011) showed that increasing credit demand by growth increase credit amount all of individual and institutional investors in Turkey. This situation is very important for banks how should manage their credit risk and which financial ratios have close relation to credit risk.

According to Anbar (2006) credit risk has an important place in the Turkish Banking System but credit risk measurement and management are not at the desired level and some deficiencies and problems in credit risk management.

A study evaluated the credit risk by Anbar (2006) concluded that banks used the internal credit rating system and credit scoring model for credit analysis and credit decision, credit risk management, determining credit limits and collateral amounts in Turkey.

In Turkey, a study regarding the credit expansion performed by Köksal and Binici (2012) stated that Turkey has an open economy because international financial conditions influence Turkey is inevitable and the sudden fluctuations in international markets can lead to credit expansion or contraction and financial fragility. So international policies and developments should be followed by policy makers in order to ensure financial stability.

Turkey struggled with inflation for many years, also important a relationship between credit and inflation. The relationship between credit and inflation during 1983-2007 in Turkey analyzed by Arslan and Yapraklı (2008) revealed that the increase in PPI bank loans, while reducing the increase in bank loans PPI increases, thus inflation a negative impact on bank loans but bank loans a positive impact on inflation. We can say that inflation increased credit risk is reduced. The relationship between credit and inflation, also affects the continuity of growth in the economy of Turkey.

Because the fall in inflation will lead to an increase in loans, loans provided by domestic demand will contribute positively to economic growth.

#### **8.4.Possible Effects of Basel III on Turkish Banking Sector and Turkish Financial Sector**

In 1989, Turkey the first time have provided transition Basel I, after a long period of preparation in June 2012, Basel II rules began to be implemented in the Turkish banks (Külahi et al.,2013). Delikanlı (2011) stated that after the crisis 2000-2001 Turkish banks relatively smoothly eluded with high capital adequacy the last global financial crisis. Although banks experienced rapid credit growth in the post crisis, their capital adequacy ratio has remained high. Thus, before implementing Basel III Turkish Banking Sector was found to be a major capital buffer.

Külahi et al.,(2013) pointed out that is expected to not problems in the transition Basel III Turkish Banking Sector which has been restructured with lessons and experience especially the crisis in 1994 and 2001. Basel III introduced common equity which added on core capital (Tier-1) and supplementary capital (Tier-2). Turkish banks meet with existing regulations capital adequacy ratio and the common equity ratio, this issue is more important for European and American banks (Yardımcıoğlu and Gökçe, 2010). A large number of Turkish government Officials and Senior Executives stated that the effects of Basel III would be minimal Turkish banks' capital structure and practices, already current Turkish banks capital adequacy ratio of 16% higher than Basel III 10.5% ineffects by January 2019 (Taskınoy, 2013). A study performed by Atıcı and Gürsoy (2011) indicated that development and investment banks in Turkey has started to hold high capital buffer since 2000s and their operations are conducted in a high capital buffer level. This study suggests that Turkish banks have adequate capital to implement capital buffer. Basel III brought about the

liquidity adequacy of some regulations is similar to 'Liquidity Regulations'<sup>41</sup> issued by the BRSA.

Cangürel (2010) stated that liquidity and capital buffers of the new rules of Basel 3 shows similarities with measures taken by BRSA for banks before crisis. He continued that liquidity risk related to the regulations issued by the BRSA<sup>42</sup> later added the acid-test ratio bankshas continued its activities without liquidity crunch during the crisis. Also, still 'target capital adequacy ratio'<sup>43</sup> application of the Turkish banking sector has been strengthened capital structure. Yardımcıoğlu and Gökçe (2010) pointed out Basel III regulations would not impose a significant change because Turkish banks' debt / equity leverage ratios, which showing the structure; are lower, capital largely consists of core capital and the minimum capital adequacy of 12%.

A report 'How Basel II May Affect Turkeys Banking System' named by Standart & Poor 's analysts Karagoez and Kouyoumdjian (2012) stated that Turkish banks will experience no difficulties in the transition to Basel III thanks to their capital level and supportive. In Turk Banks along with the Basel III liquidity management in the related work by Arıcan (2013) argued that although Turkish Banks' capital and liquidity ratios related to the thanks to current arrangements, it may seem like no problems, internationally active banks are seen as likely to experience difficulties in liquidity risk.

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<sup>41</sup>-Bankaların Likidite Yeterliliğinin Ölçülmesi ve Değerlendirilmesine İlişkin Yönetmelik

<sup>42</sup>-BDDK, Bankaların İç Sistemleri Hakkında Yönetmelik

<sup>43</sup>-BDDK, Bankalarca Kredilerin ve Diğer Alacakların Niteliklerinin Belirlenmesi ve Bunlar İçin Ayrılacak Karşılıklara İlişkin Usul ve Esaslara İlişkin Yönetmeliği

## **Findings**

The recent financial crisis showed that although should be taken measures unexpected shocks. Therefore, the Basel Committee created Basel III especially for banks to increase their capital. Basel III aims to strengthen against losses and bankruptcy financial institutions, increasing minimum capital requirements, reviewed studies indicate that increased capital requirements may be affect the profitability of banks so banks can led to allocate less capital to less risky loans. It is seen that Basel III elimination of deficiencies of Basel I and Basel II. Studies also show that especially capital buffers create an additional cost for banks; in this case, banks may be out to give risky loans.

The results of the literature banks have confirmed the impact of macroeconomic conditions on credit risk. Other studies revealed that Basel III is in close relationship with macro-economic indicator about affect the credit risk. Banks' credit risk depending on macroeconomic conditions with Basel III applications reduce or increase.

Because Basel III mostly make arrangements for banks, banks to raise their capital adequacy ratios may reduce loan volumes and the situation could lead to a global economic recession. In other words, the Basel III capital standards with rising capital costs will be more selective banks when granting credit and thus will be directed towards the banks structure with high credit ratings and strong commitment to customers. In this case, small and medium-sized companies access to credit facilities will be reduced and will be forced to use more costly loans.

When we examined that the impact and the results of Basel III for Turkish banks and the Turkish economy, expected to experience not difficulties in lending to companies lower credit ratings, because of banks with higher capital ratios. Since in 2002 crisis, Turkish Banks already standard ratio of capital continued with much higher capital ratios for their operate and that strengthened the view there would not be restriction of credit. However the banks to achieve high profitability targets, may not be lending to firms with

low credit ratings. In this case, especially SMEs can be remain difficult for lending.

Liquidity has been playing an important role banks' transactions all the time. Thanks to Basel III liquidity requirements, banks are encouraged to hold more liquid assets. Thereby banks have proper liquidity and effectively liquidity management. Also off-balance sheet items are more transparent and it is important to reduce the effect of leverage for banks.

Banks will have an effective liquidity risk management with liquidity regulations introduced by Basel III. Thus, banks will be provided to fullfill their liquidity obligations that may be caused by external events, suddenly uncertain liquidity needs and arising from economic conjuncture. Therefore, the importance of high quality liquid assets is high an effective risk management.

Also is concluded that for an effective risk management forming, monitoring and controlling banks create a robust process. In addition banks may face in the measurement of liquidity risk is important to follow assets, liabilities and off-balance sheet items according to the time zone of the cash flows.

Although not being an effective liquidity risk management Turkish Banks, it is concluded that not difficulty experience for compliance Basel III liquidity regulations. Because there are similarities Basel III liquidity regulations and BRSA liquidity regulations.

Reviewed studies indicate that due to the additional capital and liquidity requirements will increase the cost of credit and high profitability targets banks, to meet these additional requirements that will lead to a lower risk weight loans, will begin to reductions high risk weights. It is expected to especially SME loans, which are considered high risk group, may occur reductions, affect growth negatively.

We can say central to all studies showed that Basel III effect either directly or indirectly credit risk and that the strength of this relationship is influenced at least in part by regulatory capital and liquidity standards.

Turkish banks will not encounter much difficulty adapt to the changes brought by Basel III. However, as mentioned above, the possible impacts on banks Basel III are valid in Turkish Banks. Although the current capital ratios of banks comply with Basel III, though, new arrangements can lead to a reduction banks' credit risk, especially small banks'.

In addition, for the requirements of Basel III, in order to data collection, risk measurement and monitoring, reporting be made fully and timely may be required the new regulations Turkish banks' risk management practices, business models, organizational structure and personnel.

## Conclusion

In the 1980s, the most important banking risks seen as credit risk which has been developed with Basel I regulations, the international standard in 1988, after a gradual process fully implemented in 1992, so that transition is provided Basel Accords in Turkey. BIS published in 2004 Basel II Accords. In Turkey, Basel II started with operational risk including the calculation CAR in June 2007 and continued with draft of implication Basel II in 2010 and 1 July 2012 is provided in the full transition to Basel II. Although Basel III released in 01.01.2013, Turkey began Basel III capital adequacy calculations practices in January 2014.

2008 global financial crisis, have proved to be insufficient of the Basel I and Basel II regulations and ultimately had to be composed of Basel III. Basel III have developed both qualitatively and quantitatively banks' capital structure and has further strengthened with additional buffer against can be experienced in global market. Thus Basel III regulations have provide not only prevent excessive risk-taking by banks but also they have the capital to cover their risks. In addition Basel III is also required that determination of the volume of liquidity, the strengthening of supervisions, transparency in the financial system, and dissemination of the culture of risk management.

Credit risk is seen as the most difficult to manage by banks. At the same time was considered to be responsible for the recent financial crisis. We can say, mentioned above Basel III innovations can lead to the contraction banks' credit activities and there are several ways to effects of credit risk management. The literature that has been studied indicated strong ties between Basel Accord and credit risk. Starting with Basel I changes in credit risk criteria with Basel II more increased and effect of credit risk at Basel III is indicated by the authorities.

In the present circumstances, Turkish Banks have solid equity and deposit-based funding structure, healthy liquidity management and low leverage ratio. It is considered that because their capital adequacy ratio will not much

change along with Basel III, would be limited impact on loans. But the banks keep at the forefront of profitability, they will select low risk firm or consumer and selective high risk groups in lending consequently, this will affect banks' credit risk. Especially small banks in order to increase profitability may be directed to derivative transactions by reducing lending.

As a result of the Turkish economy and Turkish banks less vulnerable to internal and external crises, macroeconomic fundamentals need to be strengthened in a sustainable manner. Therefore, on the one hand macroeconomic policies other hand risk management policies need to be developed in coordination.

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