

POSSIBLE EFFECTS OF BASEL III ACCORD  
ON TURKISH BANKING SYSTEM

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Possible Effects of Basel III Accord  
on Turkish Banking System  
Basel III Uzlaşısının Türk Bankacılık Sistemine  
Olası Etkileri

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## ÖZET

Bu tez Basel Komitesinin Basel I ve Basel II uzlaşlarında görülen eksiklikleri gidermek için Basel III Uzlaşısı adı altında getirdiği yeni düzenlemelere, uygulanmış olan uzlaşların Türkiye ve bütün dünyada yarattığı pozitif ve negatif etkilere ve henüz uygulanmamış olan Basel III Uzlaşısının olası etkilerine değinmek amacıyla hazırlanmıştır. Bu amaçla akademik araştırma yapılarak Basel I, Basel II, Basel 2.5 ve Basel III uzlaşlarının temel kuralları ve hedefleri ayrıntılı bir biçimde incelenmiştir. Daha sonra Basel uzlaşlarının Türkiye'deki etkilerine yer verilmiştir. Buna ek olarak diğer ülke bankalarıyla yapılan karşılaştırmalarla Türk bankacılık sisteminin genel görünümüne değinilmiştir. Tartışma metodu kullanılarak 2008 finansal krizi ve Basel II Uzlaşısı arasındaki bağlantıya, kredi derecelendirme kuruluşlarına dair eleştirilere, kredi temerrüt swaplarının önemine ve Basel III Uzlaşısına dair çeşitli öngörülere yer verilerek çalışma sonlandırılmıştır. Sonuç olarak Basel Komitesi tarafından yapılan düzenlemelerin, yüksek sermaye yeterliliğine sahip Türk bankacılık sektöründe herhangi bir soruna yol açmayacağı, aksine Basel uzlaşlarının Türkiye'deki finansal istikrara ve risk yönetimine önemli katkıları olacağı kanısına varılmıştır.

## **ABSTRACT**

The purpose of the study is to address Basel III Accord which contains new regulations done by the Basel Committee to overcome the shortcomings of Basel I and Basel II, the positive and negative effects of the regulations applied in Turkey and all over the world and the possible effects of Basel III Accord which has not been applied yet. With this aim, while doing an academic research fundamentals and goals of Basel I, Basel II, Basel 2.5 and Basel III accords are analyzed in detail. After that, it is mentioned the effects of Basel accords in Turkey. Moreover, Turkish banking system's general overview is placed while comparing with the other countries' banks. By using discussion method and giving place to the relation between the 2008 financial crisis and Basel II Accord, the criticisms about the credit rating agencies, the importance of credit default swaps and various predictions about Basel III Accord, the study is finalized. As a conclusion, regulations which are made by the Basel Committee will not cause any problems thanks to the Turkish banking sector's high capital adequacy structure and Basel accords will have significant contributions to the financial stability and risk management.

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## **LIST OF ABBREVIATIONS**

ADC	: ASSETS DEDUCTED FROM CAPITAL
BIS	: BANK FOR INTERNATIONAL SETTLEMENTS
BRSA	: BANKING REGULATION AND SUPERVISION AGENCY
CAR	: CAPITAL ADEQUACY RATIO
CBRT	: CENTRAL BANK OF THE REPUBLIC OF TURKEY
CDO	: COLLATERALIZED DEBT OBLIGATION
CDS	: CREDIT DEFAULT SWAP
CRM	: CREDIT RISK MITIGATION
EAD	: EXPOSURE AT DEFAULT
ECAI	: EXTERNAL CREDIT ASSESMENT INSTITUTIONS
ECB	: EUROPEAN CENTRAL BANK
EU	: EUROPIAN UNION
GDP	: GROSS DOMESTIC PRODUCT
IMF	: INTERNATIONAL MONETARY FUND
IOSCO	: INTERNATIONAL OF SECURITIES COMMISSIONS
IRB	: INTERNAL RATINGS BASED
IRC	: INCREMENTAL RISK CHARGE
LGD	: LOSS GIVEN DEFAULT
NSFR	: NET STABLE FUNDING RATIO
OECD	: ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT
OTC	: OVER THE COUNTER
PD	: PROBABILITY OF DEFAULT
QIS	: QUANTITATIVE IMPACT STUDY
RAV	: RISK ASSESSMENT VALUE
SA	: STANDARDIZED APPROACH
SME	: SMALL AND MEDIUM ENTERPRISE
SSA	: SIMPLIFIED STANDARDIZED APPROACH
VAR	: VALUE AT RISK

## 1. INTRODUCTION

Financial system of a country consists of insurers, pension funds, securities markets, central banks and supervisory authorities. The duty of these markets and corporations is to realize economic transactions and provide monetary policies to ensure economic growth. A problematic financial system may cause big financial crises while a well-regulated financial system provides financial and economic stability.

Banks are the most important tools of the finance sector because of their financing power of the real sector in necessary conditions. Since banks are the most important players in the financial sector, resource allocation becomes more crucial. Gathering all kind of capital; such as household savings, corporate investments and channelizing them to the correct directions is a big challenge. Banks draw a road for the capital formation with its financial instruments. People or companies decide to invest their money according to the information they have been given. Also achieving that in different and various financial systems requires being more responsive and up-to-date. Right after technology's fast development and international economic structure has become more connected, modern banking system became widespread, and the globalization in banking sector has begun. With these developments, Bank for International Settlements was founded in 1930 in Switzerland with the aim of coordinating banks which operate in the international market and to facilitate the money transfers between central banks. The central banks of 55 countries, including Turkey, are the members of BIS.

Due to the abandonment of the fixed exchange rate regime in the 70's and the oil crisis in 1974, "The Basel Committee on Banking Supervision" was founded by BIS in 1974 to find a common solution to the

international foreign exchange and banking problems. This committee is created by the chiefs of G-10 countries' (Belgium, Sweden, Switzerland, England, Canada, France, Germany, Italy, Japan, Luxembourg, Holland, Spain, USA) central banks or supervisory authorities. The principal duties of the committee are the development of the techniques which are used under the supervision of banks, the provision of the sharing information about subjects such as the control or regulations of banks and the determination of the capital adequacy standards.

The bankruptcy of major banks beginning from the 80's was an evidence of the inadequacy of traditional risk measurement methods and therefore banks began to search new ways for the risk control. As a result, international regulators developed several principles about effective supervision of banks to reduce and control risk in the financial market. In 1988, the Basel Committee on Banking Supervision announced the first advisory Basel Accord which was not enforcement but a recommendation for the countries. Subsequently, in 2004, because of the inadequacy of Basel I in the operational banking crisis BIS published Basel II Accord. Basel Committee has continued to develop Basel Accord to strengthen the financial structure of banks and to prevent financial crisis. In July 2009, some changes were made to improve Basel II Accord and these changes are called as Basel 2.5 Accord. Moreover, in September 2010, Basel II Accord was improved in detail after the global financial crisis and Basel Committee began referring to this new regulatory framework as Basel III Accord.

The increase in foreign capital inflows in Turkey is an indicator for the fast development of the Turkish banking sector. Due to the developments in international financial markets, it becomes an obligation to make some arrangements in various fields in Turkey, such as the supervision and control of banks as in other developing countries.

The aim of this study is to point out the regulations of Basel Accords and its effects on the Turkish banking sector and other countries and examine the predictions about Basel III Accord which is not implemented yet. This study consists of five main sections.

Firstly, Basel I, Basel II, Basel 2.5 and Basel III accords and the differences between them are analyzed in detail. Moreover, positive and negative views about these accords are taken place.

Secondly, the implementation process of Basel I Accord by Turkey and the possible effects of Basel II, Basel 2.5 and Basel III accords on the Turkish banking sector are explained. Also, the problems encountered by Turkey in the preparation process of Basel II are examined.

Subsequently, general view of the Turkish banking sector before the global financial crisis and after that is investigated while comparing Turkey with other countries.

Finally, the last part of the study includes the reasons of the revisions made by the Basel Committee, the deficiencies of Basel I and Basel II accords, the relation between the global financial crisis and Basel accords, the post financial crisis situation in the world and the predictions related to the implementation of Basel III Accord.

## **2. BASEL ACCORDS**

### **2.1 Basel I Accord and its Basic Principles**

Basel Committee on Banking Supervision established by the attendance of Central Banks of developed countries and authorized persons from the auditing corporations, published the Capital Adequacy Framework in 1988, known as Basel I, in order to create a sector standard and harmonize capital adequacy calculation methods applied in different countries. This framework was accepted by the supervisory authorities of many countries, including G-10 countries.

Basel I Accord includes four pillars that are constituents of capital, risk weighting, a target standard ratio and, transitional and implementing agreements.

The first pillar, known as the Constituents of Capital, divides the capital reserves which are used for the calculation of capital adequacy ratio into two tiers. The Tier 1 Capital which is the main measure of a bank's financial strength consists of core capital but it also consists of retained earnings and non-redeemable preferred stock. Banks must hold %4 of Tier 1 capital of which a minimum core capital ratio is %2. On the other hand, the Tier 2 Capital also called supplementary capital which is %4 includes undisclosed reserves, revaluation reserves, general provisions, hybrid debt capital instruments and subordinated term debt. The Tier 1 capital is %4 of risk weighted assets. The Tier 2 Capital should not exceed %100 of the Tier 1 Capital which means that effectively at least 50% of a bank's capital base should consist of Tier 1 capital.

The definition of the capital adequacy, which is known as Cook Ratio, was first argued in Basel Capital Accord, published in 1988. According to this ratio;

$$\text{Basel Capital Adequacy Ratio} = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Credit Risk}} \geq 8\%$$

The nature of the crisis that has occurred in Turkey and Mexico in 1994 showed the importance of adding some elements that carries out market risk like foreign exchange, interest rates and commodity prices to capital adequacy calculation. In addition, with the effects of the unstable interest rates and exchange rates, many financial corporations were bankrupted in the USA. From 1996 onwards, the market risk which contains the risks based on interest rates and exchange rates was appended to the denominator of the CAR in the USA. Because of these reasons, Basel I is regulated to include the market risk while determining the capital adequacy and by this way the developing process of Basel I accelerated.

$$\text{Basel Capital Adequacy Ratio} = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Credit Risk} + \text{Market Risk}} \geq 8\%$$

The proposal also liberalized the definition of capital by adding a third tier. Tier 3 capital comprised short-term subordinated debt, but it could only be used for the market risk. Tier 3 capital is used to support market risks.

The second pillar of Basel I Accord, Risk Weighting, determines different risk weights for the banks' assets. For instance, a customer given credit and his capital requirement, in terms of the credit risk situation, is determined whether the country is an OECD country or not. It means that the OECD countries are in an advantageous position for the credit facilities. It is suggested in Basel I that in the process of giving credits, banks should

apply specific principles and the risk amount which the banks undertake should be at an acceptable level. There are five risk categories in the Basel I Accord. The first category weights assets such as cash held by a bank, central banks' and government' debts in domestic currency and all OECD debts at 0% and these are seen as riskless. The second risk category is 20% which weights assets like development bank debts, OECD bank debts, OECD public sector debts and non- OECD bank debts which are under 1 year maturity. The third risk category which is 50% includes only residential mortgages. The fourth risk category which is 100% weights assets which have high risk such as private sector debts, non-OECD bank debts with a maturity over a year, equity assets held by a bank and all other assets. The fifth category weights the public sector debts at 0%, 10%, 20% or 50% and this is related to the central banks' decision.

The third pillar, Target Standard Ratio, determines international capital adequacy standards. According to these standards, the minimum capital adequacy ratio should be 8%. The minimum capital adequacy ratio which is 8% which cover risk-weighted assets should be the sum of Tier 1 Capital (4%) and Tier 2 Capital (4%). By this way a bank makes provisions for the predictable loss and regulates the liquid capital for unpredictable loss.

The fourth pillar, Transitional and Implementing Agreements, aims to spread the implementation of Basel I Accord. The supervision of the domestic authorities is very important for the implementation of the accord and each central bank should create enforcement mechanisms.

According to the Basel I Accord, banks should use the standardized method and also with the allowance of the formal supervisory, they may use their own methods in order to measure the market risk. The purpose of Basel Committee is to bring the same criteria to the international banks which have different control structures and to create the necessary environment for easier alignment in globalized competition.



### **2.1.1 Positive and Negative Views about Basel I**

Basel I is exposed to negative criticism by the major international players and academic circles of developed countries since it has a simple content. However, as Yayla and Kaya (2005) states that the simple structure of Basel I and its feasibility facilitated its internalization by the developing countries. Moreover, Basel I increased the competition in financial industry and modernized the regulations of the developing countries. It also created a fair competition atmosphere for the players of the market. On the other hand, the capital adequacy ratio of 8% became an obligation in some developing countries and by this way financial stability has gained strength.

Çelik and Kızıl (2008) present another point of view in this matter. They denote that Basel I is more favorable than Basel II for the OECD countries like Turkey because by the implementation of Basel II, the capital necessities will increase in the banking sector. Basel II developed the internal ratings based approach to allow the banks to use their own risk rating system while they calculate the capital adequacy ratio. When the standardized approach is applied by the Turkish banks, all companies would be subjected to 100% risk weighting. However, the foreign banks which apply the internal ratings based approach to the unworthy companies will use lower risk weights and these banks will be in a more advantageous position than the banks which use standardized method.

Despite the positive views about Basel I, there are also some negative views. The credit risk which the bank is exposed to in Basel I is calculated by separating different risk classes the bank's off- balance sheet items and by multiplying the risk weights of each classes with the coefficients of 0%, 10%, 20% and 100%. According to Yayla and Kaya (2005), Basel I in which there are only five different risk weight categories, has low risk sensitivity because it is a capital regulation applied to all banks in the same way. Risk classification is arranged in a wide range so assets

which carry different risks are shown in the same risk group. This issue caused investors to make their risk analysis wrong. Also, risk sensitivity of Basel I is low because it does not include operational risks. In addition, in Basel I, risk weight which is given to the OECD countries is 0% because of the OECD club rule. In contrast, 100% risk weight is applied to the non-OECD countries and it is considered as another weakness of Basel I. The weaknesses of this implementation is understood by the crisis occurred in OECD countries.

Moreover, Ayan (2007) claims that there is not a borrower differentiation in Basel I. This differentiation is important while calculating the capital requirement based to the credit risk. As an example, there are two companies and one of the companies has strong financial structure whereas the other has not. In this case, while granting a loan to them, the bank has to keep the same capital without looking to the morality of the companies. Also, Basel I regulations could not predict secondary market changes. For example, a lot of banks showed lower risk than they carry by positioning in derivative markets or selling their debts by securitization and by this way they continued their activities with low capital. The banks which proceed to very risky investments in proportion to their capital caused to the rise of big crisis.

Finally, the methods, which are suggested by Basel I Accord and which measure the credit and market risk of banks, remained inadequate to calculate banking risks in a realistic way, to take the financial market price fluctuations into consideration and to oversee different behaviors of banks while they are creating a portfolio. Because of these reasons, it became a necessity to expand the coverage of the Basel I Accord and to configure it with more accurate risk measurement and management methods. Indeed, the Basel I Accord adopted in 1988 gave place to the Basel II Accord in 2004.

## **2.2 Basel II Accord**

### **2.2.1 Transition to Basel II and Differences between Basel I and Basel II**

Basel Committee on Banking Supervision's main purpose is to give more importance to the risk management and encourage the banks to continue risk measurement innovations by Basel II Accord. In June 2004, Basel Committee published Basel II which means leaving the "one size fits all" method of Basel I used to calculate capital adequacy. New convention aims to empower risk management methods, create more reliable infrastructure for the supervision of banks and to provide a sustainable financial stability in the global world.

The club rule of Basel I which provides some advantages to the OECD countries is removed from Basel II. In Basel II, the credit risk is determined according to the credit ratings of the borrower. While some methods of Basel II Accord use the credit grades which are given by the independent auditing firms (Standard&Poors, Fitch, Moody's, etc), other advanced methods take into consideration the credit ratings which are determined by the banks with the allowance of supervisory authority.

In Basel I, there was an obligation of capital adequacy for credit and market risks. In addition to this obligation, the capital adequacy for operational risk was added to Basel II. According to Basel II, banks are responsible for the measurement and management of the material risks as it was the case in Basel I. However, the identification and measurement of these risks are not an evidence for the adequate capital, right risk management or financial stability. In addition to the risk measurement and management methods, the investigation of the supervisory authorities and the components of the market discipline are the important elements of Basel II. The main purpose of Basel II is to suggest the banks to make provision for the expected risks and provide the minimum capital for the unexpected

risks. In Basel II, banks are asked to evaluate their capital adequacy and the capital adequacy and evaluation process of the bank is needed to be audited by a supervisory banking authority. The detailed information about capital adequacies has to be disclosed by the banks. There was not a regulation like this in Basel I.

To summarize, Basel II aims to reach more stable, safe, and competitive finance sector by measuring the risks more sensitively, determining the risk profile of the banks separately, increasing the responsibilities of the banks' senior management and disclosing the financial tables for reflecting the real situation of the banks and minimizing the asymmetric information between the players of the finance sector.

### **2.2.2 Basel II and its Basic Principles**

In 1999, Basel Committee presented a formal debating atmosphere via internet with the aim of resolving the shortcomings of Basel I and creating new capital standards for banks. The committee published the Basel II Accord in 26 June 2004 by using the suggestions offered in this debating atmosphere.

Although Basel Committee has no legal authority, it is an organization composed of the public institutions of the related countries. The principles which are developed by the committee are not compulsory but advisory and they are accepted all around the world. The advises of Basel Committee were taken into account in the regulatory studies made by European Parliament and Council.

Basel II aims to reach more competitive, healthy and stable financial structure while minimizing the asymmetric information among the players in the financial system by;

- Measuring the risks more sensitive,
- Defining the risk profiles of the banks one by one,
- Increasing the responsibilities of the banks' executives,
- Explaining the banks' financial situation with more clear financial tables.

In the proposal published by the Basel Committee (2001), there are two basic aims and expectations. One of them was reaching more agreements in terms of regulatory and economic capital. Economic capital is the capital which meets the economic cost of the risks. On the other hand, regulatory capital is the capital advised by the Basel Accord. The other aim is the provision of capital equipment which is predicted for the users of standardized approaches and which is kept approximately in the same level.

The most important phase for developing countries is the implementation process of the accord. There are alternative ways for the operation of Basel II. The first alternative way is related to the non-use of the new accord and development of the risk oriented management models. The other alternative is the USA model. In the USA model only international banks apply the new accord. The last alternative way is the EU model. EU banking system adopts the Basel II principles completely in all member countries.

The Basel Committee predicts to apply the accord on international scaled banks in a consolidated basis. In Basel II, the investments which are described as affiliates are the investments made to the banks, securities and other financial institutions by the minority shareholders and which are not used in the organizational management. By decreasing legal investments and paid capital of these affiliates, it becomes possible to remove them from the banks' capital. As an accord requirement, banks which are shareholders on the capital of an insurance company should undertake the whole risk of

this insurance company. The investments made by the insurance companies were also removed from the related bank's capital.

We can collect the basic premises of Basel II Accord in three pillars. These are; maintenance of regulatory capital for credit risk, operational risk and market risk, reviewing of the banks' risk management strategies by the supervisory authorities and disclosure requirements which will give information to the market participants about an institution's capital adequacy.

The first pillar is about the minimum capital requirement that a bank should keep against possible risks. There are three different options which were predicted for credit and operational risk calculations by the approval of the supervisory authorities.

In the credit risk calculations;

- Standardized Approach
- Foundation Internal Ratings Based Approach
- Advanced Internal Ratings Based Approach

In the operational risk calculations;

- Basic Indicator Approach
- Standardized Approach and
- Internal Measurement Approach can be used.

The most remarkable innovation of Basel II is the addition of the operational risk next to the denominator of the capital adequacy ratio.

$$\text{Capital Adequacy Ratio} = \frac{\text{Equities}}{\text{Credit Risk} + \text{Market Risk} + \text{Operational Risk}}$$

Basel Committee (2004) states that the supervisory authorities should notice that authorizing different approaches while calculating the bank's capital adequacy may cause to the different capital adequacies for the

same type of operations. To prevent this conflict, each supervisory authority should define a strategy which is suitable for their special conditions and their visions. To summarize, the authorities should evaluate the conditions written below while taking into account the potential differentiations occurred from the use of multiple approaches about the capital requirements.

- While determining the structure of the banking system, it is important to take into account the diversity of the operating banks. For example, a country which has only domestic banking system is quite different from a country which has only foreign bank branches and subsidiaries.
- The supervisory authorities should consider the possible effects of the new capital adequacy plan on the new products and services developed in their financial markets.

The second pillar is related to the examination of banks' risk management strategies by the supervisory authorities. The supervisory authorities should pay greater attention to the quality of risk management system of the banks and their ability to evaluate exposed risks. Moreover, the auditing system should include meetings with the senior management and board of directors of a bank about the important issues such as on-site survey, remote surveillance and periodic reporting. Supervisory authorities should use their sources to create prudential standards and rules for applying Basel II principles. For example, in the standardized approach, supervisors should evaluate that 35% risk weight is enough for the real estate loans or not by taking into account the historical losses of their countries and if 35% risk weight is not enough, they should determine the prudential criteria that should be applied. Moreover, banks may need to change their internal systems in order to collect suitable data and meet the changing reporting requirements. Banks should have information technologies process and data storages in order to collect and save the data and calculate the loss efficiently.

Supervisors should discuss with the banks the process of upgrading to the next approach. The dialog among the supervisory authorities is very important while sharing the practical resolving methods about the internal risk management processes and the difficulties in terms of compliance of Basel II. This kind of information sharing leads to comparison between Basel II implementations of different countries.

After making some assessments, some supervisors will permit to the use of Basel I or the basic principles of Basel II. On the other hand, the others may want from their banks to change their system completely from Basel I to Basel II. Basel Committee (2004) indicates that the authorities should consider the factors written below while choosing the banks which are suitable for Basel II.

- Banks' growth (the share of their assets in the banking system)
- Quality and complexity degree of the banks' operations
- Important fields of activities and business lines (Clearance and equalization operations, Have a large retail network)
- International activities (cross border branch structure)
- Relations with the international markets
- Risk profile of the bank and risk management skills

The main purpose of market discipline which is the third pillar of Basel II, is accomplishing the first and second pillars. In this context, Basel Committee aims to promote market discipline by creating several public announcement obligations for the banks. These announcement obligations contain capital adequacy, risk exposures and risk assessment processes. By this way, investors will have an opinion about the banks' risk level and methods to manage these risks.



With the provision of market discipline, it is aimed to reach correct and significant information by the investors and other related parties while determining their financial decisions. The aim is decreasing the uncertainties and risks in the market. On the other hand, the provision of market discipline contributes to the provision of financial stability.

Moreover, market discipline encourages banks to act prudently by increasing the transparency level of information while making public announcements. In this context, Basel Committee believes that investors and other related participants will be able to make more detailed information about the banks' capital level and they also will be able to make risk and quality assessments about the bank. In this pillar, the public announcements which are made by the banks should be consistent with the banks' senior management and board of directors' evaluation and management style of the banks' risks. For example in the first pillar, banks use specific methods to measure the risks that they faced and determine the minimum capital requirement due to these risks. These methods are realized by using complex approaches. According to Üçgün (2010), because of the error probability of these complex processes, the public announcement requirement fostered the banks to be more attentive and prudent while calculating the minimum capital requirement.

#### **2.2.2.1 Pillar I: Minimum Capital Requirements**

Pillar I is a part about the minimum capital requirement that a bank should keep against possible risks. In Pillar I, 8% minimum capital requirement ratio which is the sum of Tier 1 and Tier 2 capital ratio remain same as Basel I. At this stage, operational risk is added to the accord. The most important innovation in the "Standardized Approach" part of Basel II is using the credit notes of companies, banks and countries, given by the independent rating agencies such as "Standart&Poors", "Moody's and Fitch", while determining the risk weights. On the other hand, in the

simplified standardized approach, defining the risk weights depends on the ratings given by the export credit agencies.

The calculation methods in the different risk categories can be seen in Table 2.1.

**Table 2.1 Calculation Methods for Different Risk Categories**

<b>Development Level of Measurement Method</b>	<b>Basic</b>	<b>Medium</b>	<b>Advanced</b>
<b>Risk Category</b>			
<b>Credit Risk</b>	Simplified Standardized Approach/ Standardized Approach	Basic Internal Ratings Based Approach	Advanced Internal Ratings Based Approach
<b>Market Risk</b>		Standardized Approach	Internal Approach (RMD)
<b>Operational Risk</b>	Basic Indicator Approach	Standardized Approach	Advanced Measurement Approach

Source: Arslan, İ. 2006, *Basel Kriterleri ve Türk Bankacılık Sektörüne Etkileri*, p.54

Credit risk can be calculated by the standardized approach, basic internal ratings based approach and advanced internal ratings based approach. In order to calculate the risk weighted assets by the medium and advanced methods, the banks' rating and risk forecast systems should have a rational and quantitative structure. In order to concretize this statement;

- A bank should use a rating system as defined in Basel II minimum three years before starting the calculation.
- A bank should use a 5 year data set in order to calculate probability of default.

- A bank should use and calculate the parameters of loss given default and exposure at default according to the standards of the accord for minimum 3 years (for only advanced approach).

While calculating the market risk, there is no important change in Basel II and the “value added risk” approach is the same as in Basel I. Capital requirement for the market risk may be calculated by the standardized approach. On the other hand, the measurement of the market risk can be done by the internal approach with the exception of foreign bank branches.

In the operational risk measurement methods, suggested in Basel II, the basic indicator approach, standardized approach and advanced measurement approach are used by the banks. The midpoint of these methods is that calculation is made via the level of banks’ income.

As a new innovation of Basel II, using the national preferred option and different options in some subjects has been left to the countries’ authorities’ control. Moreover, in Basel II, choosing the ratings among the rating companies is also related to the choice of countries’ authorities. In this context, national authorities may apply less risk weight to the domestic currency risks. As Arslan (2006) states, because of the existence of the national preferred option, Basel II has a more flexible structure than Basel I.

#### **2.2.2.1.1 Credit Risk**

##### **2.2.2.1.1.1 Standardized Approach and Simplified Standardized Approach**

Credit risk is related to the loss occurred from the unpaid or late paid short and medium term loans. Participation banks, small scaled banks and medium-scaled banks use standardized approach or simplified standardized approach while calculating their capital adequacy for the credit risk.

Simplified Standardized Approach is mainly same with the “Standardized Approach”. Simplified Standardized Approach has been separated from the Standardized Approach in terms of taking into account the export credit rating agencies about the ratings. The main differences are that the simplified standardized approach permits to the banks to use only the first option, weights the corporate loans by 100% and not evaluate the credit derivatives in the context of credit risk mitigation techniques. On the other hand, big scaled banks and medium foreign banks use the internal ratings based approach.

In the standardized approach which is the basic method of calculating the credit risk, the ratings given by the authorized institutions are effective in the determination of risk weights. Within the scope of the Standardized Approach, the holdings of the banks have been classified as portfolios written in Table 2.2 and each portfolio has different implementations.

**Table 2.2 Risk Weights Used in the Standardized Approach**

Assets	Options	AAA/AA-	A+ / A-	BBB+ /BBB-	BB+ /B-	Under B-	Non-Degreed
Loans Given To Treasury/Central Banks	According to the grades of ECAI	0%	20%	50%	100%	150%	100%
Loans Given To Other Public Institutions and Organizations	Treasury Kind	0%	20%	50%	100%	150%	100%
	Option – 1	20%	50%	100%	100%	150%	100%
	Option – 2	20%	50%	50%	100%	150%	20%
Loans Given To The Banks	Option – 1	20%	50%	100%	100%	150%	100%
	Option – 2	20%	50%	50%	100%	150%	50%
	Option – 2 (Short Term)	20%	20%	20%	50%	150%	20%
<b>Assets</b>		<b>AAA/AA-</b>	<b>A+ / A-</b>	<b>BBB+ /BB-</b>	<b>Under BB-</b>	<b>Non-Degree</b>	
Loans Given To The Corporations		20%	50%	100%	150%	100%	
<b>Assets</b>					<b>Risk Weights</b>		
Retail Loans					75%		
Mortgages					35%		
Non- Performing Loans					%50, %100 or %150		

Source: Yayla, M. & Kaya Türker, Y. 2005, *Basel II, Ekonomik Yansımaları ve Geçiş Süreci*, p. 7

### **a) Loans Given to the Treasury and Central Banks**

While financing the public debts, the rating of a country in the world market become an important factor. In this context, if a country's international rating is high, the risk weight of this country will be 0% while financing public or collateralizing treasury bonds. On the other hand, if the ratings are insufficient more guaranties will be needed.

### **b) Loans Given to Other Public Institutions and Organizations**

The methods which are applicable in the receivables from banks are also valid for the receivables from the governmental foundations. However, according to the choice of the national supervisory authority, the risk weight which is used in the treasury and central bank might be used for some governmental foundations which own the criteria determined in Basel II.

### **c) Loans Given to the Banks**

Basel Committee predicted two alternative methods for the loans given to the banks. One of them will be applied by the decision of the national supervisory authority.

In the first method; the risk weight of the banks is determined according to the rating of the bank's country. Banks are subjected to one point less than the countries' ratings.

The second method uses the banks' own credit grades and determines the risk weight while taking into account the debt maturity. In short term receivables which have less than three months maturity, one grade less than the bank's grade will be used but the risk weight should be limited with 20% minimum risk weight base.

**Table 2.3 Risk Weights for the Loans Given to the Banks**

Degree	AAA AA-	A+ A-	BBB+ BBB-	BB+ B-	Below B-	Non degreed
1. Method	20%	50%	100%	100%	150%	100%
2. Method	20%	50%	50%	100%	150%	50%
2. Method Short Term*	20%	20%	20%	50%	150%	20%

Source: Arslan, İ. 2006, *Basel Kriterleri ve Türk Bankacılık Sektörüne Etkileri*, p. 57

In Basel II, the credit risk mitigation techniques are used to mitigate the credit risk occurred from the non – balance sheet activities and the assets of a bank. CRM techniques are classified as the guaranties, on balance sheet clearance agreements and credit derivatives. The minimum capital requirements may decrease by these techniques.

#### **d) Loans Given to the Capital Market Foundations**

The loans given to the capital market foundations will be evaluated as the loans given to the banks if they have got the regulations which correlate their equities and risks like the banks. If they have not got such legislation, their loans will be evaluated as the corporate credits.

#### **e) Loans Given to the Corporations**

The financial companies which are not regulated or supervised as banks and insurance companies are categorized in this group. These loans are weighted by taking into account the grades of the independent rating agencies. If there is not a credit rate of the borrower, the risk weight should be 100%. However, this is a disadvantage for Turkey because most of the companies do not have a grade given by an independent rating agency.

The national banking supervision authorities were given the right to give 100% risk weight for all loans without looking the ratings given by the national independent rating agencies for the corporate loans. According to Basel II, corporate firms defined as corporations which have more than 50 millions EUR endorsement.

**Table 2.4 Risk Weights for the Loans Given to the Corporations**

Rating	AAA/ AA-	A+/ A-	BBB+/BBB-	Under BB-	Not Rated
Risk Weight	20%	50%	100%	150%	100%

Source: Arslan, İ. 2006, *Basel Kriterleri ve Türk Bankacılık Sektörüne Etkileri*, p. 58

#### **f) Retail Loans**

The loans given to the SMEs which do not exceed 1 million Euros and each kind of private loans except mortgage loans are evaluated in this category and the risk weight is 75%.

#### **g) Mortgage Loans**

The residential mortgage loans risks' are weighted at 35%. In Basel I, residential mortgage loans were placed in the 50 percent basket. Because of this reason, there will be a decrease in the capital requirements for the mortgage receivables and other loans which are secured by the real estate of a borrower.

#### **h) Commercial Real Estate Loans**

In several countries, the commercial real estate secured loans are in the troubled asset type. As a result of this, the risk weight of these types of loans is 100% according to Basel Committee. However in some countries

where the real estate market is developed and well organized, the risk weight of these kinds of credits may be 50%.

**i) Other Assets**

Other assets are subject to 100 % risk weight. For example, the non-financial investments and subsidiaries that will not decrease from the capital will be subject to 100% risk weight.

**j) High Risk Categories**

This category involves the corporate companies whose credit notes are less than BB- and countries and banks whose credit notes are less than B-. In addition, this category weighted at 150%.

**2.2.2.1.1.2 Internal Ratings Based Approach**

The internal ratings based approach allows banks to use their own rating models. By this way, banks will be able to calculate default probabilities and it increases the banks' maneuverability. However the regulatory authorities should approve the banks' internal rating methods. In order to use this approach, the bank must proof to the regulatory authorities that the rating and risk prediction methods give effective results.

According to the internal ratings based approach, a bank should classify the receivables in order to evaluate the credit risks. In the context of this approach, the receivables are;

- Corporate Receivables
- Receivables from the Treasury and Central Bank
- Receivables from banks
- Receivables from the retail market



- Stock Receivables

The regulation presents two approaches.

- Basic Internal Ratings Based Approach
- Advanced Internal Ratings Based Approach

In these two approaches, the main necessity is the rating system. A bank should carry the minimum requirements determined in Basel II to use internal ratings based approach. The minimum requirements of the regulation include a series of standards such as the structure of the rating system, public announcements, etc... In the basic approach, the bank will determine the default probability in the repayment of the loans and the supervisory authority will supply other components. In the advanced internal ratings based approach, the bank which has a developed capital allocation structure is given the permission for supplying the other components. As Evcil (n.d.) indicates criterias related to the banks' use of the internal ratings based approach are as follows:

- Significant, well defined and differentiated credit risk
- Full and accurate rating determination
- Auditing the rating system and process
- Determining the criteria for grading system in detail.
- Presenting a method for the estimation of default probabilities.
- Acquiring a data processing system which has the capacity to provide the necessary data.
- System approval by the local banking authority
- Making public announcements determined in the third pillar of Basel II.

The regulatory authority should deeply investigate the parameter predictions of the banks. In addition, the prediction of parameters affects also the accuracy of the capital requirements because wrong parameter predictions will create different minimum capital requirement values within

the banks and it will affect the market competition structure. As a result of this, the reputation of the regulatory authority may be damaged. In this context, the safe structure of a data set which is used in the prediction of parameters is very important. On the other hand, the accuracy of the borrowers' information creates neutral PD prediction statistics which is necessary for the calculation of the credit risk.

Another important part of the internal ratings based approach is the consistency. This approach should be applied to all risky assets and all business areas. Nevertheless, in Basel II, if a bank cannot use the internal ratings based approach for all its asset classes in the same time because of the data restrictions; it is suitable to apply IRB approach step by step with the approval of regulatory authority.

#### **2.2.2.1.2 Operational Risk**

Operational risk is defined as the possible loss risk occurred from the inadequate or inoperative internal processes, systems or external factors. In the context of operational risk, the legal risk is included; however the strategy and reputation risks were excluded from the approach. As Basel Committee (2004) states, in the process of transition to Basel II, the supervisory authorities should be aware of the effects of the obligation to hold capital for the operational risks. Moreover they should encourage the banks to develop appropriate approaches for the measurement of operational risks.

While calculating the operational risk, it is possible to use the basic indicator approach, the standardized approach and advanced measurement approaches. Each approach involves applications which have high risk sensitivity than the previous one.

Basel II aims to keep less capital on banks which have more comprehensive risk management applications for the operational risks. However this condition does not work in general because a more comprehensive approach may calculate higher capital requirements than a simple approach. If a bank has an approval for a comprehensive approach, it is prohibited to return to a more simple approach.

In banks, the transactions which cause to the operational losses are subject to the analysis periodically. On the other hand, some precautions were developed to prevent these losses for the business areas where the operational risk is high. In banks, operational risk departments were created. In addition some banks created early warning systems about the operational risk conditions. In order to quantify the operational risks, some banks created risk maps.

Basel Committee (2001) supposed that 20% of the capital will be adequate for the operational risk. However, after the inquiries and surveys, this 20% target is decreased to 12%.

Basel II suggests three different approaches to determine the operational risk. These are basic indicator approach, standardized approach and advanced measurement approach.

#### **2.2.2.1.2.1 Basic Indicator Approach**

In the basic indicator approach, the last three years average gross income amount is considered as an indicator of the risk and capital requirement for the operational risk is calculated by multiplying this amount with the defined coefficient (15% Alfa factor).

#### **2.2.2.1.2.2 Standardized Approach**

In the standardized approach, the banking facilities are separated into 8 activities. These are:

- Corporate Financial Services
- Exchange Services
- Retail Banking
- Corporate Banking

Payment and Clearance Services

- Agency Services
- Asset Management
- Retail Brokerage Services

The capital requirement is calculated by multiplying the last three years average gross income amount of each branch with the defined coefficients for each branch (12%, 15% or 18% Beta factors). The average of capital requirements' of these branches gives us the amount of capital requirement that a bank should keep against the operational risks. The main difference between standardized approach and basic indicator approach is the use of different coefficients for each branch in the standardized approach.

#### **2.2.2.1.2.3 Advanced Measurement Approaches**

In Basel II Accord, banks were authorized to establish their own models if they meet the required criteria. In addition, a bank which satisfies the conditions can use advanced measurement approach for its some operations and use basic indicator approach or standardized approach for other operations by the approval of supervisory authority. There are three methods determined for the “Advanced Measurement Approach”. These are:

**a) Internal Measurement Approach**

It is more complex than the basic indicator approach and standardized approach, however this approach is more sensitive to risk. The calculation of the capital requirement for the operational risk is based on the bank's internal loss data. By this way banks are encouraged to collect internal loss data.

**b) Scorecard Approach**

In the scorecard approach, the capital for the operational risk which is reserved for the whole bank or its operational branches will be determined and this capital will change according to the scorecards in the length of time. Through the scorecards, a risk profile and risk control framework is defined for the various branches. In the scorecard approach, the risks of the related branches are evaluated and converted to capital by the manager(s) of the branch. However, the weakest point of this approach is that the scorecards which are filled by the branch managers may be relatively subjective. In order to reduce this weakness, historical loss amount should be used while verifying the scorecard approach results.

**c) Loss Distribution Approach**

Loss distribution approach based on the collected data predicts the probability and possible damages of loss which occurs from the operational risks of each branch. As in the market risk, the loss is calculated by the value at risk model.

However as Giese claims (2002) these methods are in the monopoly of big banks because of high technical costs. Most of the banks calculate the capital requirement for the operational risks on the banks' income which is an unsafe way.

### 2.2.2.1.3 Market Risk

Market risk is the probability of loss occurred on the balance-sheet and of balance-sheet positions which depends on the price changes. As another definition, market risk is the possible losses arising from the changes in the risk factors. These risk factors are interest rate risk, exchange rate risk, stock price risk, commodity price risk, option risk.

In Basel II there is not a significant change in the assessment of market risk and the Value At Risk approach and standardized approach were preserved as in the Basel I. Except the foreign branches, the market risk can be measured with the internal model too. The VAR results are used while allocating economic capital and setting and monitoring risk limits. On the other hand, VAR model considered as an important element of the risk control and management processes. In some small scaled banks, VAR models are only used for certain portfolio and positions.

In the banks, some studies were carried out in order to make measurements by the sophisticated software and integrate these measurements to the data processing infrastructure. The banks which use internal models conduct the retroactive tests like the stress tests, scenario and sensitivity analysis for the reliability of the models.

According to the Basel I Accord, while calculating the market risk, the risk weight of public securities was 0%. However, in Basel II Accord, there are different risk weights that change according to the ratings given by the ECA or ECAI to the country which exports the security.

The Basel Committee has changed the Value at Risk Model, which has been applying since 1996. The capital adequacy calculation for the stressed VAR and credit risk were added to the calculation of capital adequacy for the market risk. The main reasons of this change are the losses

in the banks' exchange accounts and increasing leverage effect along the time period of 2008 financial crisis.

The committee presented two approaches in order to calculate the market risks: Standardized Approach and Internal Measurement Approach.

#### **2.2.2.1.3.1 Standardized Approach**

Banks which do not use internal models in the market risk measurement and which do not have reliable risk measurement models are enforced to use the standardized approach for the measurement of the market risk. The implementation of this approach is undertaken by five headings like the exchange rate, interest rate, stock, commodities and option risks. Interest rate and stock risks have two components as the general market risk and special risk. Capital requirement calculations are performed for each of these risk components.

#### **2.2.2.1.3.2 Internal Measurement (Value at Risk) Approach**

As a result of the developments in the information technologies, diversification of financial instruments and increase of transactions, the kinds and sizes of the risks faced in the markets were also increased. In addition, the financial institutions which have to maintain their functions in extremely fragile conditions need the advanced risk measurement models in order to measure their risks in a correct and a comprehensive way. This necessity increased after the crisis occurred because of the insufficiency of risk management processes.

VAR Model is a risk measurement method which determines the possible loss in the value of portfolio. Internal measurement models are used for measuring the banks' risks and calculating the minimum capital

requirements against these risks. In addition, because of the internal measurement models the comparison of banks becomes more reliable.

The use of internal models is subject to the permission of the national supervisory authority. The process of calculating VAR model consisted of 5 levels. These are:

- Appreciation of the portfolios with the market price,
- Measuring the variability of risk factors,
- Determining the duration of owning,
- Determining confidence interval,
- Using the data to obtain the highest amount of loss and reporting results.

However, the VAR amount is not seen sufficient for the provision of capital adequacy by the Basel Committee. The highest value which is obtained, by weighting with the multiplication factor determined by the supervisory authority, the calculated VAR amount of the previous day and VAR amount realized in the last 60 days, is the value that a bank should keep as a capital for the market risk.

#### **2.2.2.2 Pillar II: Supervisory Review Process**

The Pillar II is the investigation process of banks' risk management methods by the supervisory authority. Basel Committee re-defined the surveillance procedures on a wider plane with Basel II. It is aimed to empower the internal control and corporate management principles by the duties entrusted to the board of directors and managers. The main purpose of the Basel Committee while innovating the surveillance procedures is maintaining the capital requirements and promoting banks to create and use efficient methods to monitor and manage their risks. It is very important for a bank the full compliance of Pillar II to perform a risk assessment which is



suitable with the first pillar's complexity and nature. The Basel Committee defined four main principles to provide the compliance of Pillar I and Pillar II.

#### **2.2.2.2.1 First Principle of Pillar II**

Banks should have internal systems for evaluating the capital adequacy and strategies to protect this capital adequacy against their risks. Banks should be able to announce the consistence of the target capital with the risk level they are facing to and current economic conditions. Economic conditions or change of the banks' facility areas creates important effects on the banks' need of capital. The banks should have a system which allows identifying, measuring and reporting the risks in a systematic and objective way. According to this principle, there should be a revision process made by the board of directors and managers, the evaluation of the capital requirements should be made correctly, the risk management should be made in a comprehensive way, internal control system should be revised and reporting should be made with the observation.

The risk types which are not taken into account in Pillar I should be addressed in Pillar II. These risk types are credit concentration, structural interest rate risk, liquidity risk, business risk, strategic risk and reputation risk. The factors which are independent from the bank such as economic fluctuations should be in Pillar II. While evaluating the capital adequacy, the committee is aware that it is important to use a methodology which depends on banks' scale, complexity of their interactions and their facility strategy. The big scaled banks which use advanced methods can pass to the economic capital methods. Smaller banks which have not got complex activities can prefer judgment oriented models for the capital planning. These kinds of banks should have to show that their internal capital targets are compatible with their risk profiles.

#### **2.2.2.2.2 Second Principle of Pillar II**

Audit and supervisory authorities should examine the evaluation system and strategy of the banks about capital adequacy and should take the necessary precautions when the banks' internal system is not enough.

The supervisory authorities should control banks' internal systems by examining the adequacy of target capital level with the loaded risks and existing external conditions, the review of the adequacy of target capital level by the bank management and the consistency of the content of the capital with the size and executed activities of the bank.

Thus, the evaluation of the supervisory authorities is predicted as; on-site examination, off site examination and review, arranging meetings with the bank management, taking into account the independent audit reports about the banks' capital adequacy and requesting periodical reports.

The supervisory authority should provide that the banks' analysis include all of the important risks. Moreover, there should be a process which assesses the bank's risk management and control systems adequacy, the awareness of the board of directors on capital evaluation process and the use of capital adequacy evaluation while taking a decision. Also, the supervisory authority should also take into account that a bank considers the unforeseen events or not while determining their capital adequacy.

#### **2.2.2.2.3 Third Principle of Pillar II**

Local authorities should wait from the bank to operate above the minimum capital adequacy and if needed, the authority should request from the bank to keep a capital over the minimum capital.

The minimum capital standard defined in the regulation is a limit to evaluate a bank which has low credit worthiness as a bank which has normal credit worthiness. The banks' activities type and size can change in the course of time so their risk structure and capital adequacy ratios can also change. In the period of negative market conditions, increasing the capital may be costly for the banks that affected from the changes negatively. In addition, banks may be faced of the risks occurred from the private or general economic conditions which were not specified in the first pillar.

For example the supervisory authorities,

- Should request only one ratio which is over %8 for all banks,
- Should define trigger rates on a sectorised basis which allows to apply increasing regulative measures day by day,
- Should define bank based target rates by taking into account the banks' risk profile and risk management quality,
- Should evaluate the acceptance of the banks' ratio defining process.

#### **2.2.2.2.4 Fourth Principle of Pillar II**

Local authorities should hinder the falling of the capital from the determined level (8%) and request from the banks about taking quick measures in order to increase the capital adequacy ratio over 8%. In order to increase the banks' capital, the supervisory authority may audit the banks deeply, may limit the dividend distribution and may request from the bank to immediately increase its capital.

As a result of these four principles written above, "economic capital" concept which has been using by the international banks for a couple of years is officially placed in Basel II. The economic capital represents the capital amount which is allocated as a buffer against the potential losses arising from the activities of the bank. The level of the regulatory capital is

determined by the regulatory authority and by this way it is aimed to protect the deposit holders and the financial system. However, the economic capital is occurred as a result of the risk consolidation and it is an approach which expresses different types of risks in a single metric. A bank may provide the minimum capital adequacy but it does not mean that it has enough economic capital. Therefore, the bank should properly build the link between its capital and total risks and also the regulatory authority should approve it.

It is emphasized that the banks and some of the corporate management units which started to work in the context of Pillar II were making progresses. According to the Pillar II, the five main components of the internal capital adequacy evaluation processes which are directly related to the banks are:

- The board of directors' and senior management's oversight and control,
- Solid and reliable assessment of the capital,
- A comprehensive risk assessment,
- Monitoring and Reporting,
- Checking by the internal control system.

In this context, the main studies done by the banks are:

**a) Process Determining**

In the banks, some processes about risk definitions, periodical revision of the risks according to the changeable market conditions and changes in banks' positions and about the periodical reporting of the need of regulatory and economic capital to the top management are determined.

## **b) Evaluation of the Capital Adequacy**

In the banks some studies are carried out about the evaluation processes of the capital adequacy in a regular basis. These studies include preparing qualified risk reports, applying stress tests and scenarios related to the positions and doing retroactive tests to measure the performance of the models.

## **c) Monitoring and Review of the Systems**

Banks' credit concentration limits are detected and these are followed on a regular basis. In addition, the rating and scoring systems are reviewed at regular intervals.

## **d) Capital Requirement for the Risks of Pillar II**

Some studies are carried out by the banks to determine an additional capital against the risks which are outside of the scope of first pillar such as the concentration risk, systemic risk, liquidity risk, structural interest rate risk, reputational risk and strategic risk.

To conclude, as Powell (2004) states the correct implementation of Pillar II across the globe will develop reliability of the banking sector.

### **2.2.2.3 Pillar III: Market Discipline**

In Pillar III, the scope and frequency of public announcements about the banks' financial situations, risk levels and the qualitative and quantitative information related to their capital structure were determined. In addition, the importance of market discipline is emphasized. This implementation helps to ensure the financial stability by motivating banks in

a prudent way. The market discipline which depends on the efficient public announcements is a complement of supervisory efforts to motivate banks about strong risk management systems.

Basel Committee aims to inform market participants about banks' risk liabilities, risk evaluation processes and their capital adequacy by extending the principles of public disclosure. Thus, the comparison between the banks can be made and by this way it is possible to ensure transparency. The supervisory authority has basically two different data sources. The authority controls the banks' standardized approaches by collecting data with the remote observation and on-site inspection. Moreover, the supervisory authority decides the suitability of the banks' use of the internal ratings based and advanced approaches by evaluating the capacity of the bank.

Banks should have a policy about the public announcements. The process of public disclosure needs internal auditing. The statements should be consistent with the banks' risk management and evaluation. It is predicted that the frequency of statements should be in every six months in the context of market discipline and transparency. However, this frequency might increase or decrease in some cases. For example, public announcements about the subjects like risk management policies and reporting systems may be once a year.

The general features of the published information about capital adequacy can be summarized as follows:

- Disclosure about the scope of the application
- Disclosures about the capital
- Disclosures about the capital and capital adequacy components
- Disclosure about risk profile
- Disclosure about credit risk
- General Information

- Disclosure about the information on portfolios
- Disclosure about credit risk profile
- Disclosure about credit risk mitigation techniques
- Disclosure about securitization
- Disclosure about market risk
- Disclosure about operational risk
- Disclosure about equity investments
- Disclosure about structural interest rate risk

In the third pillar, an important issue is the compatibility of the published disclosure standards with the national accounting standards. In Pillar III, it is explained how a bank will give public information about its financial situation. In addition, in this pillar, the consolidation of a banking group should also be explained.

Each supervisory authority should develop an implementation plan for the Pillar III in accordance with the legal substructure of that area. This plan should take into account the size of the banking system, banks' level of development, the accounting standards, the power and capacity of the audit function. The said plan should determine the requirements of the third pillar, analyze the basic deficiencies, develop a progressive course of action and consult the obligations with banks and public opinion. Supervisory authorities should evaluate whether they have the power to provide the fulfillment of the public disclosure obligations. On the other hand, the supervisory authorities should develop their organizational skills and expertise for the implementation of Pillar III. These efforts will make necessary new human resources and technology investments.

In addition, for the supervisory authorities, it may be necessary to develop a process to force banks to comply with disclosure obligations. This process consists of;

- Assessing the reported information in order to evaluate the bank's management,
- Using supervisory reports for making information to facilitate the audit of the banks' conformity with the public disclosure,
- Publishing researches which put forward the compliance of the banking industry with various public disclosure initiatives and by this way, encouraging the market to monitor the level of compliance of the banks,
- Emphasizing the importance of the announcements made by the officials to the public,
- Providing the understanding of the announced information by the participants of market and advising the market participants how they will react in the absence of these announcements.

### **2.2.3 Positive and Negative Views about Basel II**

It is important to mention about the positive and negative views related to the Basel II Accord. Firstly, it will be appropriate to give place to the positive views.

The main objective of Basel II is to raise the risk awareness of big banks – especially those that work in the international market – and prevent bad banking implementations with lessons learned from previous crisis. While the basic compelling forces behind Basel II are big international banks and formal authorities of G10+ countries, its implementation is expected to have serious effects on the financial markets of developed and developing countries.

According to Atiker (2005), for Basel II's economic reflection to be positive, many criteria have to work in harmony simultaneously. One of the most important points to be considered here is the evaluation and rating of risk. Basel Committee authorized external rating companies under SA &



SSA approaches and authorized banks under IRB approach to evaluate and rate risk of the markets. Formation of the real data is aimed by this dual evaluation and rating system. Thorough rating makes prediction of potential crisis will be easier and taking necessary precautions will be possible. Basel I was not sufficient enough for these predictions. It even made the crisis deeper in crisis struck countries as credit rating companies decrease the credit notes of these countries. By Basel II, this problem is wanted to be solved.

Moreover, Atiker (2005) states that Basel II also functions as an economic conjuncture evaluator. In other words, grades of every country, company or institution that wants to use credit will be formed according to the changes and predictions in the economy. Basel II is sufficient in terms of detailed evaluation as the credit ratings of companies and institutions in a country will be set according to the economic position of the country. In other words, if the grades of credit users are high and risk weights are low in a country; it means that this country has a good economy. In a way, these credit users will determine the international rating of their country.

Basel II is seen both as an opportunity and an area that requires new efforts concerning developing countries such as Turkey. As long as there is an alternative, Basel II is neither compulsory nor indispensable. As Yayla and Kaya states (2005) it is the new regulation standard of the global finance sector, although it is difficult and costly for developing countries, not adapting can also have extreme costs. The complexity of first pillar calculations and the data standards required for advanced approaches suggest that short-term application processes will cause problems in some banks. Despite the problems and difficulties, determination for the transition to Basel II is expected to have positive effects on the whole finance sector in the long term. Focusing on second and third pillars is also important as they encourage risk management culture and market discipline.

As said pillars focus more on qualitative criteria, their contribution to financial stability in developing countries is thought to be substantial.

According to Arslan (2006) as the risk evaluation for credit user SMEs will be made under certain rules and standards with Basel II, companies will be realistic in their records regarding commercial activities in terms of both collateral requirements and the cost of credit that they will use. As this change will result in some infrastructure cost, instead of a simultaneous change that will cause high costs and time loss when loan use is needed, an effort to implement a planned approach where commercial activities are to be recorded transparently over time is necessary.

As mentioned by Weder and Wedow (2002), if we assume that international banks currently consider economic capital that complies with the IRB approach while pricing and extending credits, in short; if the regulatory capital is not binding, it is possible that Basel II will not have any additional effect on prices and credit trends. In other words, expecting a dramatic raise in the spreads regarding speculative treasuries (BB+ and below) with Basel II and IRB approaches would mean that said debt is insufficiently priced by international banks before Basel II. However, the capital trends towards developing countries seem to fluctuate although there is no change in the regulatory capital. In this context, the reason for Turkey to take out fewer loans from foreign countries than Singapore although they both have equal regulatory capital need is that they have different risks. Powell (2004) claimed that the regulatory capital is not binding. For example, in the studies done by Liebig, Porath, Weder and Wedow (2004) regarding German banks' credit trends towards developing countries, 99,5% of German banks' average economic capital is more than their average regulatory capital.

First studies about the effect of Basel II on treasury loans assumed that international banks considers regulatory capital while extending credits.

Therefore, there were some indications that Basel II will reduce credit trends towards developing countries and increase spreads. Griffith-Jones and Spratt (2001) claims that Basel II will make the line between developed and developing countries clearer and instead of its aim to bring capitals closer, it will actually make them farther apart. In addition, later studies carried out by Weder and Wedow (2002) or others without the assumption of binding regulatory capitals, in other words the studies that take economic capital into account, tend to have relatively moderate results. The results of these studies show that Basel II will definitely have an effect on developing countries but these effects will remain moderate and it will be impossible to ignore them.

While ratings are determined by the general macroeconomic conditions of a country, as Yayla and Kaya (2005) mentioned that capital trends can be affected by other factors. Domestic demand in developed countries is low as their population growth is slow, their population gets older and the infrastructure investments were almost completed. Therefore the marginal profit of capital is low in these countries. Because of this reason, it is thought that, with the effect of portfolio distribution, the capital will continue to move towards developing countries. If the capital only moves towards the countries that have high ratings, the spreads of said countries will decrease, therefore affecting the profit of international banks. That is the reason it is thought that international banks will keep countries of different ratings in their portfolio to maximize profit and diversify their portfolio in spite of varying costs. In addition, different parameters such as growth potential and expectations (such as Turkey's expectation of EU membership) are also taken into consideration while extending credits to these countries. A country's relations with international foundations such as World Bank, OECD and IMF can also be decisive while taking international loans. However, it is still thought that country ratings will have increasing importance due to the capital regime presented by Basel II. Yayla and Kaya (2005) claim that countries that secure an investment rating (BBB- and

above) will be in advantage. For instance, optimistic evaluation results like Powell's study (2004) show that the costs of countries that have BB- grade will not be affected or will be marginally affected by the IRB approach. Most of the developing countries, including Turkey, have grades of BB- or above.

Despite the positive views about Basel II, there are also some negative views. Studies regarding Basel II's effects on developing markets commenced with the publication of first consultation about Basel II. One of the leading studies was made by Griffith-Jones and Spratt (2001). This study asserts that if international banks that apply IRB approach switch to Basel II, the loans available for developing markets will dramatically decrease and/or costs of international loans will severely increase. Besides, it is stated that risk management based on IRB approach will be pro-cyclical – which means it will further depress already depressed economies and heat up the economy in times of expansion, therefore causing more frequent and severe financial crisis in developing countries. Banks of developing countries will need more capital as they will tend to use standardized approaches for a while, while international banks will adapt more complex approaches that require less capital. Because of this situation, the said study states that it will be difficult to compete for national banks with their international counterparts, which will eventually lead to a consolidation dominated by the international banks in the national banking system.

Under the view of standardized approaches, as OECD club rules will no longer be valid, Yayla and Kaya (2005) claims that it will cause OECD member countries that have low credit ratings to be negatively affected by Basel II. On the other hand, it is thought that countries that are not members of the OECD but have high ratings will have the opportunity to take more and/or cheaper loans. That is why it is essential for countries, banks and companies to take the necessary precautions in order to increase their ratings. In addition, as IRB approaches become widespread, it is possible

that those who have grades of BBB or higher will have the opportunity to take more loans while those who have grades below BBB will face a decrease in the credit supply. As grades equal to BBB and lower than BBB are mostly the grades of developing countries, it is claimed that international banks will reduce the funding supply towards these countries.

Internal ratings based approach vastly decreases the need for regulatory capital regarding the funding of customers with low delinquency risk while the need of regulatory capital increases for the funding of the customers with high delinquency risk. As mentioned by Yayla and Kaya (2005), banks that adapt IRB approaches may tend to extend credits to “higher quality” clients. This may result in a clear separation in the client market as clients with low ratings will be funded by local/foreign banks that use standardized methods. Customers with low ratings will be faced with high funding costs and probably lower service quality or will focus on developing new policies (such as transparency, strengthening the financial structure and better governance) in order to increase their ratings.

Griffith-Jones and Spratt (2001) assert that with the adaptation of IRB approach, spreads of countries with low ratings will tend to have dramatic increases. In addition, as Basel II allows the coexistence of standardized and IRB approaches, it is claimed that banks that have complex business activities will refrain from taking risks (that they will remove low quality clients from their portfolios) while banks that have less complicated operations will tend to move towards clients that have higher risk profiles. According to Yayla and Kaya (2005) the point implied here is that international banks will be reluctant to fund developing countries and that demand will be satisfied by “smaller” banks. As it is known little players of the banking sector tend to follow leading banks behaviorally, there is a possibility that said demand may never be satisfied by these “smaller” banks.

Ratings, given to the countries by rating companies and used in the calculation of credit risk by the standardized approach do not direct the market as companies can not get information about countries. Thus, rating companies were seriously criticized during the Asia Crisis as they failed to predict the crisis and they decreased grades of the well rated countries after they were struck with the crisis which eventually caused the crisis to become even deeper. In a structure controlled by this delayed behavior, risk levels of assets change due to the cyclical movements of the economy and therefore calculated capital has also a homogenous cyclical movement. Banks' tendency to hold less capital and extend more (excessive) credit during expansion periods and doing the opposite during depressions may cause serious downsizing. This situation invigorates the boom-bust movement in the economy, which causes to the growing of distances between bottom and peak points. Similarly, in IRB approaches where parameters regarding the borrowers are determined by the bank, correspondence with cyclical movements becomes more significant. As the risk of delinquency estimated by the bank is homogenous with the cyclical movement, delinquency risk decreases if the economy is good and increases if the economy is bad. Accordingly, banks' capital needs are also cyclical. Data produced by the banks and rating companies will be a guide in the evaluation of the markets. However, as stated by Çelik and Kızıllı (2008) if the whole finance sector has the same database regarding a region or a market, a possible fluctuation in the market will reinforce banks' tendencies to act homogeneously. This situation points out that Basel II can trigger crisis in financial markets and might undermine crisis management.

Under the IRB approach, risk weights are calculated by the inward prediction of probability of default and loss given default. These predictions are based on the data acquired in recent years – at least 5 years for PD predictions and at least 7 years for LGD predictions. Giese (2002) asserts that default risks are extremely dependent on the conjuncture. Thus, during the explosion phase of the conjuncture, default number will be little and

therefore risk weights will be low. This situation will cause to the cheaper credits, new investment opportunities while encouraging growth. During the economic recession this process is seen vice versa. In this manner the IRB approach intensifies the course of conjuncture.

Basel II encourages the banking system to be profit oriented businesses rather than working as public welfare organizations by decreasing risk and increasing profit. Çelik and Kızıl (2008) claims that almost all of the funds created and turned into credit may move to more profitable areas. It is also possible that the resources will move towards the Public and Treasury papers left under the initiative of local supervisory authorities as they are evaluated with 0% risk weight and they have not got a collateral problem. Also, high real interest rates applied by the Central Bank are very appealing for the banks. With this in mind, it is probable that credit costs will increase and credit availability will decrease for SMEs.

Additionally, the risk weight of a company rated below B- is 150% and an unrated company's risk weight is 100%. By Yayla and Kaya (2005), this situation is thought to cause companies that think they are in a risky position to avoid being rated. The reason that unrated companies are taken 100% risk weight is thought to be the goal of preventing credit costs for SMEs. In this sense, credit rating might be made compulsory for big companies. These ratings given by the different rating companies should be consistent to maintain confidence. According to Yayla and Kaya (2005) some problems under the implementation of standardized approach may be as follows; rating companies may damage reliability by policies such as exaggerating real ratings and giving "better" grades in order to attract the increasing demand.

Studies done by Claessens and Embrechts (2002) show that country grades given by the rating companies follow market movements in a delayed manner and all credit companies act slowly when they change

grades. Such problems regarding rating companies were not encountered in IRB approach. However, there are some views that as IRB approach brings high costs for both banks and the supervisory authorities and as it is an advanced system that requires suitable data and highly qualified personnel, its implementation in the developing countries seems to be unlikely even in the medium term.

In its offer, Basel Committee (2001) assumes that the IRB approach requires just 2-3% less capital for credit risk than basically reviewed standardized approach, and advanced IRB approach enables 10-20% ease for highly advanced banks. According to Giese (2002) it is certain that such saving percentages are not enough to encourage banks when it is compared with the high bureaucratic costs of the adaptation of the IRB approach which is BIS's declared objective. From the point of view of those who use the standardized approaches (essentially all small banks), risk appropriate capital allocation will not be possible anywhere except USA and England in the near future. Therefore, those who adapt the standardized approach in Europe will have to cope with a competitive disadvantage compared to their USA counterparts that implement the IRB approach. For example, standardized approach predicts 100% risk weight for a highly reliable but unrated company, while under the IRB approach the same company's risk weight can be below 20% as it is highly credible. This situation causes a competitive disadvantage. To conclude, there is great pressure on European banks to adapt the IRB approach.

### **2.3 Basel 2.5 Accord**

In July 2009, some changes were made to improve Basel II. In the first pillar, the changes are about the additional risk, the stressed VAR and the calculation of minimum capital in the context of securitization. In the second pillar the risk management was changed and in the third pillar, the



context of public announcements was changed. These changes are known as Basel 2.5 in the public.

In July 2005 the Basel Committee and IOSCO agreed with several improvements for the capital regime of trading book positions. They brought some new obligations for the VAR models of banks which measure the specific risk and keep capital against default risk. On the other hand, in the global crisis started in 2007, important losses occurred in the trading portfolios of developed countries' banks and with the increase of leverage effects, the need of amendments on market risk calculations occurred. Moreover, some deficiencies were seen in the securitization positions and it was understood that the re-securitization positions are more risky than securitization positions so serious changes were made in the calculation of capital requirements for securitization positions with Basel 2.5.

### **2.3.1 Pillar I**

While the re-securitization positions were not defined before, a definition made on the related positions with the context of these changes. According to this definition; the risk pool related to the credit risk is separated into pieces and at least one of the risks in the risk pool occurred because of the securitization positions, is the re-securitization . In Basel 2.5, the risk weights applied to the securitizations under the standardized approach are not changed. However, higher risk weights are determined for the re-securitizations. Moreover, risk weights determined for the re-securitization positions are higher than the risk weights of the securitization positions in the internal ratings based approach. In the supervisory authority formula, 7% risk weight of securitization positions increased to %20 for the re-securitization positions.

By Basel 2.5, within the framework of securitization methods in Basel II, the use of ratings given by the credit rating agencies are connected

to some specific operational obligations. Otherwise, banks should reduce these positions from their equity. With the changes, it is aimed that a bank should not trust only to the credit rating agencies and should also make its own analysis.

The banks which apply the standardized approach in the context of Basel II use 20% loan conversion rate for the acceptable commitments in the liquidity credit allocations which are less than one year maturity and 50% loan conversion rate which are more than one year maturity. After that, it is provided the implementation of 50% loan conversion rate for all the acceptable commitments in the liquidity credit allocation independent from the maturity.

In the context of Basel 2.5, in order to measure basic risks within the frame of market risk, some regulations added by the Basel Committee. These are:

- Incremental risk charge obligations for the loans which are not securitized,
- The capital requirements which are applied to the securitized products are also applied to the trading portfolios.
- The possibility of adding correlation trading portfolios to the comprehensive risk capital requirements due to the provision of certain conditions.
- To be added to the Value at risk, the calculation of the stressed VAR is included to the market risk for the first time.

### **2.3.2 Pillar II**

By Basel 2.5, the aim of the changes on the second pillar is to define the risks that a bank or a supervisory authority may encounter in the future. On the other hand, Basel 2.5 aims to guide banks and supervisory authorities by covering these risks in the internal capital adequacy

evaluation processes. From this point, risk management was separated into two pieces. These are general risk management and special risk management. General risk management points out that the specifications of an healthy risk management should have some features like the board of directors and senior management oversight, policy and implementation procedures, implementation of limits and controls, risk identification and measurement, monitoring and reporting and internal control and audit. On the other hand, the context of specific risk management consists of;

- Risk concentration
- Off-balance sheet risks and securitization risk
- Reputation risk
- Valuation applications
- Liquidity risk management and supervision
- Healthy stress test applications
- Healthy pricing practices

### **2.3.3 Pillar III**

By the revisions made in the market discipline, it is aimed to solve uncertainties on the market by providing more information to the banks about the securitization risks, giving more importance to the comments of the banks and providing more certain definitions of these risks. It is provided the explanation of the quantitative features of the securitization risks on the trading and banking accounts. Moreover, it is pointed out that a bank should announce which assets they are planning to securitize in the future.

### **2.3.4 Criticisms about Basel 2.5**

As a result of the amendments made by Basel 2.5, it is seen that total capital liabilities of the banks increased 11,5% in average. The major

contributor of this increase is the need for additional risk capital. Another contributor of this increase is the specific risk capital requirement for the receivables of re-securitization. The majority of the countries published Basel 2.5 or started to the implementation by giving the final drafts at December 2011. Independently, Switzerland started to implement Basel 2.5 Accord one year before. According to an article published in the Economist Journal (2012), the risk weighted assets of Credit Suisse's investment banking activities increased 28% in the third quarter of 2011 because of the Basel 2.5.

Cangürel et al. (2012) point out that Basel 2.5 is criticized as it is a quick answer to the 2007-2008 financial crisis with insufficient risk analysis. In Basel III preparation process, the early implementation of Basel 2.5 created difficulties for the banks. In the calculation of the capital need, the sum of two different values by the same volatility value which means the addition of the stressed VAR to the VAR value is considered that the same risk is measured twice. Moreover, in Basel 2.5, the separate calculation of the capital requirements, stressed VAR, IRC and CRM causes to the pieced risk and it is criticized that the diversification effect is not taken into consideration and it causes to the twice calculation. Also, it is claimed that this implementation increases operational risks.

## **2.4 Basel III Accord**

### **2.4.1 Transition Process to Basel III**

A series of events such as Lehman Brothers announcing bankruptcy in September 2008, conversion of big investment banks in the U.S.A. to conglomerate bank companies, nationalization of Fannie Mae and Freddie Mac, AIG almost collapsing, fragmentation and sale of Fortis, collapse of Iceland's banking system after their biggest commercial bank's downfall, many countries giving great support to their banks show that necessary

precautions are not taken regarding crisis situations yet and the current system has some serious shortcomings.

According to Cangürel et al. (2010) as the financial crisis was very costly and very rough, the necessity of some reforms such as liquidity, increased capital quality, consideration of the economic cycle and increased liability of capital has become obvious for the banking and finance system to be more resilient to possible future crisis.

After the last global crisis, Basel Committee agreed on the Basel III standards in order to repair inadequate aspects of formerly promoted and implemented Basel II, to suggest new approaches and precautions and therefore try to avert possible crisis or at least minimize the damage. With this point of view, deficiencies of Basel II can be regarded as the reasons of the need for Basel III. Some of the reasons of Basel III Accord are as following:

- Strengthening the capital buffers that can decrease suddenly in negative market conditions,
- Increasing the quality of bank capitals,
- Implementing a leverage ratio to support Basel II,
- Decreasing the pro-cyclicality in the need of minimum capital and allocating reserve,
- Strengthening the banking sector by suggesting capital and liquidity regulations,
- Increasing banks' resistance to stress occasions and enhancing risk management.

**Targets to reach with Basel III can be summarized as follows;**

- Increasing the resistance of the banking sector to financial and economic shocks wherever they come from,

- Enhancing corporate governance and risk management,
- Increasing banks' transparency and encourage them to give out more information to the public,
- Increasing banks' individual resistance via micro regulations,
- Increasing the amount of current minimum capital, altering its quality and in addition to the current practice, implementing a non-risk based, in other words accounting based minimum capital requirement standard,
- Increasing or decreasing the amount of capital on hold according to the cyclical periods of economy,
- Regulating the minimum liquidity ratios,
- Changing the capital adequacy calculations about the trading book,
- Changing the calculation of the counterparty credit risk.

Basel III is not a “revolution” like Basel II, which completely changed the method of calculating capital requirement. It is rather a supplement that brings a series of new regulations to overcome Basel II's deficiencies observed during the last financial crisis.

#### **2.4.2 Basic Principles of Basel III**

The reform calendar prepared by the Basel Committee was one of the most important subjects of the G20 summit held in Pittsburgh on October, 2009. The Basel Committee announced said reforms to the public with a press statement on September 12, 2010.

Objectives of the changes in regulation named Basel III are discussed in detail below.

- **Better Quality Capital:** With the new regulations, only the highest capital components (Paid capital is the highest quality component) remain in the core capital or common equity, some other capital

components are considered as deductions when calculating the common equity.

- More Capital: Common equity ratio, Tier 1 capital ratio and regulatory capital ratio are increased. In this context, common equity ratio will be increased to 7% and Tier 1 ratio will be increased to 8.5% gradually. But 8,5% rate of the Tier 1 capital is the necessary level to help banks operate in an easier way in some situations (such as acting freely when distributing profit).
- Creating a Capital Buffer: According to the position of the economic cycles, the capital that needs to be held can be increased between 0% and 2.5%.
- Non-Risk Based Leverage Ratio: A non-risk based minimum rate is planned to be formed between off-balance sheet components taken into account under certain turnover rates, total assets and common equity. Predicted leverage ratio is 3% (bank could leverage up to 33 times its equity) and a gradual transition is aimed.
- Liquidity Regulations: Two rates with minimum levels of 100% named Liquidity Coverage Ratio and Net Stable Funding Ratio are planned to be included to the regulations. An extended adaptation period up to 2018 is aimed.
- There are current studies about the calculation capital adequacy regarding counterparty credit risk and trading books.

There are also ongoing studies regarding the areas below;

- Review of the trading books.
- Use of external grades in the securitization (within the frame of capital calculations).
- Developing policies regarding systematically important financial institutions.
- Regulations about great risks.

- Developing cross-border banking principals.
- Enhancing standard procedures and strong cooperation between bank auditors and supervisory authorities.

#### **2.4.2.1 Better Quality Capital**

The reason for the changes in Basel III regarding the quality of the capital is because of the last financial crisis, where it became evident that the amounts shown as capital in bank balance sheets were far from being qualified to act as functional capital.

Banks' most important assets that act as shields during tough times are the capital they have. The size of the capital is generally seen as an indicator of financial power. Basel III is expected to increase the quality of capital in banks substantially.

The scope of equity is changed. The rule that the supplementary capital cannot be more than 100% of the core capital and the implementation of Tier 3 is revoked.

Components in Tier 1 that have high potential of loss compensation are called common equity. Common equity consists of paid capital, undistributed profits, profit (loss), other extensive income statement components and prices deducted from this total.

Regulatory adjustments including over the threshold value investments made to financial institutions, mortgage services and delayed taxes will be used as deductive components in the common equity as of January 1, 2018. Therefore, deduction of these components from common equity will be made gradually, starting with 20% in 2014, 40% in 2015,



60% in 2016, 80% in 2017 and 100% in 2018. Previous implementations will be valid for the remaining parts during this transition process.

**Table 2.5 Capital Differentiation and its Ingredients**

Tier 1 Common Equity (CET1)	<ul style="list-style-type: none"> <li>• Common shares, minority interests and retained earnings are the only qualifying elements</li> <li>• Hybrid securities excluded under Basel 3</li> </ul>
Additional Tier 1 (AT1)	<ul style="list-style-type: none"> <li>• Instruments classified as liabilities for accounting purposes and have loss absorption feature built in</li> <li>• Dated, cumulative instruments no longer qualify as Tier 1</li> </ul>
Tier 2 Capital	<ul style="list-style-type: none"> <li>• Primarily comprised of dated subordinated debt</li> <li>• Diminished importance given Basel 3's focus on Tier 1</li> </ul>
Tier 3 Capital	<ul style="list-style-type: none"> <li>• Dated, subordinated debt issued to satisfy market risk requirements</li> <li>• Eliminated from capital under Basel 3</li> </ul>

Source: Joyce, T., Dyadyuk, M. & Guzman, J. 2012, *The Road to Basel 3*, p.57

From now on, 90% of the capital components that are not part of the common equity or the supplementary capital will be recognized in the year 2013, and the recognition rate will be lowered 10% every year so that in 10 years said components will no longer be regarded as capital components. It is possible to see the capital differentiation and its ingredients in Table 2.5.

#### **2.4.2.2 More Capital**

More capital is needed in the banking sector to prevent the repetition of financial crisis. With this, risks can be lower. As seen in Table 2.6., the need for total capital will stay at its current 8% level and therefore it will not have to be gradual. Minimum common equity ratio (Common equity/Risk-Weighted Assets) and Tier 1 requirements will rise to 3.5% 4.5%

respectively at the beginning of 2013 from their current levels of 2% and 4%. Minimum common equity and Tier 1 requirements will be 4% and 5.5% respectively starting from the year 2014. Final requirements for common equity and Tier 1 capital at the beginning of 2015 will be 4.5% and 6% respectively.

The capital conservation buffer brought up with Basel III will gradually be added to common equity, Tier 1 capital and total capital. Said rate is planned to be raised gradually from 2016 to 2019 and reach its final figure of 2.5% in 2019. Therefore the total common equity requirement will reach to 7%. Plus, Basel Committee on Banking Supervision has encouraged bigger banks to allocate more capital than 7%, as bankruptcy of such banks can cause the whole financial system to crash and burn. New laws stay on top of the possibility of the violation of these regulations by the banks. If any of the banks lower their capital sufficiency rate below 7%, financial authorities can prohibit them from distributing profit to their shareholders or paying bonuses to their employees, they may even be forced to lower the wages of their employees.

Caruana (2010) emphasizes that two main duties should be carried out in order to effectively limit systematic risks. These duties are:

- To regulate raise and growth in expansion periods of the financial system and to regulate fall and downsizing in recession periods in order to balance the rise and fall of the real economy.
- To consider interdependent and common risks between financial institutions for especially significant systematic risks.

Table 2.6 Changes in the Capital Requirements

	2011	2012	2013	2014	2015	2016	2017	2018	As of 1 January 2019
Leverage Ratio	Supervisory Monitoring		Parallel Run 1 Jan 2013 - 1 Jan 2015 Disclosure Starts 1 Jan 2015					Migration to Pillar 1	
Minimum Common Equity Capital Ratio			3.5	4	4.5	4.5	4.5	4.5	4.5
Capital Conservation Buffer						0.625	1.25	1.875	2.5
Minimum Common Equity Plus Capital Conservation Buffer			3.5	4	4.5	5.125	5.75	6.375	7
Phase-in of Deductions From CET1 (Including amounts exceeding the limit for DTA's, MSRs and Financials)				20	40	60	80	100	100
Minimum Tier 1 Capital			4.5	5.5	6	6	6	6	6
Minimum Total Capital			8	8	8	8	8	8	8
Minimum Total Capital Plus Conservation Buffer			8	8	8	8.625	9.25	9.875	10.5
Capital Instruments That No Longer Qualify As Non-Care Tier 1 Capital or Tier 2 Capital			Phase Out Over 10 Years Horizon Beginning 2013						
Liquidity Coverage Ratio	Observation Period Begins				Introduce Minimum Standard				
Net Stable Funding Ratio	Observation Period Begins							Introduce Minimum Standard	

Source: Delikanlı, İ. U. 2011, *Road to Basel-III: Strategies and Priorities of the BDDK*, p. 11

In order to overcome the deficiency of Basel II regarding the consideration of cyclical behavior of the economy, implementation of a countercyclical capital buffer that varies between 0% and 2.5% depending on country conditions and preferences has been brought up. Said buffer needs to be separated from the common equity or other components that are sufficient of full loss compensation. Rapid loan giving growth is aimed to be prevented with increasing or decreasing the countercyclical capital buffer according to the growth rate of the economy.

### **2.4.2.3 Leverage Ratio**

A transparent, simple, apparent and non-risk based leverage ratio has been brought up. Said rate will be found by dividing the core capital to off-balance sheet components considered under a certain conversion rate and assets ( $\text{Core Capital} / \text{Assets} + \text{Off-balance sheet components}$ ) and 3% rate will be tested parallel application period that will continue until the first half of 2017. The final leverage rate will be determined and included to the Pillar I on January 1<sup>st</sup>, 2018, after QIS studies and parallel application results are evaluated.

### **2.4.2.4 Liquidity Ratio**

With Basel III, two rates concerning liquidity named Liquidity Coverage Ratio and Net Stable Funding Ratio has been formed.

Liquidity Coverage Rate, which will be calculated by dividing the liquid assets of the bank to the net cash outflow in 30 days, has to be at least 100%. Net cash outflow is the difference between cash outflow and cash inflow during a period of 30 days. As this rate's being less than 1 indicates that the bank will have difficulties in covering net cash outflow with its liquid assets in western finance institutions, it has to be more than or equal to 1. However if the different features of industries and sectors in countries

that have high inflation and scarce funding resources are considered, the sufficient amount for the liquidity coverage ratio can differ. If the debt collection quality is low even if the rate is more than 1, it is a negative situation. Whereas in a company that has high stock turnover, the rate being less than 1 will not cause any problems.

Net Stable Funding Ratio is calculated by dividing “available stable funding” to “the required stable funding”. Net stable funding ratio has to be at least 100% too. While the amount of available stable funding is determined according to the maturity dates and qualities of components in a bank’s liabilities including Tier 1 and Tier 2 capital, the amount of required stable funding will be determined according to the due dates and qualities of the components in a bank’s assets.

2011-2015 is determined as a monitoring period for Liquidity Coverage Ratio, while 2012-2018 is determined for Net Stable Funding Ratio’s monitoring period. After the monitoring periods, it is stated that minimum standards for the said rates will be announced. In addition, there are ongoing studies about changing the calculation of capital adequacy regarding counterparty credit risk and trading accounts.

### **2.4.3 Positive and Negative Views about Basel III**

The financial crisis in 2008 which was caused by the fluctuations in the housing market in the USA and spread all over the world exposed the fact that many banks used to function with inadequate quality or amount of capital and liquidity. It is well known that banks try to conduct their activities with minimum amount of equity and reach the best possible equity profit rates. However, functioning with very low or insufficient capital and liquidity ratios cause a process of possible losses from loan defaults and other investments which might lead to bankruptcy. In the light of all these

calculations, it is unanimously accepted that it would be beneficial to raise the standards regarding capital and liquidity.

When all the financial crisis periods are examined, it is seen that during positive economic conditions banks tend to extend loan supplies and distribute high profits to their shareholders and employees while during negative economic conditions they cut resource flow to the real economy by retrenching loan supplies and negatively affect economic growth. According to Gürel, Bulgurcu and Demir (2012) the most important aspect brought up by Basel III is the implementations of “countercyclical capital buffer” and “capital conservation buffer” in order to prevent the above mentioned negativity. From this point of view, although it might have some short term negative effects on banks’ value of equity as it causes the need for additional capital, Basel III is expected to positively affect economic growth in medium term with its said precautions. Plus, they claim that that a banking system with stronger capital structure will be integral in forming macro-economical balances.

Cangürel et al. (2012) emphasize three positive points of Basel III:

- The new Basel III package provides a clearer finance sector. It might have an important role in order to remove uncertainty.
- The new Basel III package combines micro and macro level prudence developments. The goal is to form proper capital plans in order to cope with systematic risk and evaluate the increase and decrease trends caused by the economic developments of the financial system. Basel III tools will be suitable to limit systematic risks.
- An appropriate and long enough transition period is planned with Basel III. Generally approved transition regulations will support loan giving while helping the banking sector to meet higher capital standards by proper income protection and capital increase.

To sum up, the reports issued such as “Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirements” and “An assessment of the long-term economic impact of stronger capital and liquidity requirements” (2010) by BIS estimate that the long term global average of the common equity/risk weighted assets ratio was 7% before the crisis; and if that ratio is increased 1% along with the implementation of the liquidity standards brought up by the Basel Committee, probability of crisis will be reduced from 4.6% to 2.3%.

However, there are also negative criticisms about Basel III. Cangürel et al. (2010) state that economy and growth figures are expected to be adversely affected when the banks aiming a certain equity profit in order to have additional capital and liquidity tend to raising loan intermediation costs and move towards loans and investment tools that are classified as having lower risk weight to meet the obligations about common equity and core capital; as this situation will result in less loan and more interest rates for medium and small scaled companies that are rated with higher risks.

Hasbu (2010) points out: one opinion suggests that new regulations will ensure that there will be no bankruptcy regarding banks in the event of a new financial crisis, while another opinion claims that these regulations will force banks to have billions of dollars of reserves when that money can be used to help revitalizing the economy during the time of recession. Both these views have their supporters among big nations. While U.S.A and U.K want to implement these new regulations as soon as possible (at the latest 2018), Germany prefers to implement new regulations in 2023, when they are sure that the economy is out of recession.

Brown (2010) expressed that Karl-Heinz Boos, president of the German Public Banks, has stated that loan giving abilities of the German Banks will be limited to a great extent with the new regulations. Therefore, Cangürel et al. (2010) denote that time and calendar of implementation of

these new regulations called Basel III is greatly important. They also point out that there are concerned parties claiming that the implementation of new regulations in a strict and quick way may damage the global economy recovery process and may cause serious recession or financial depression. BIS took these concerns into consideration and the changes spread over a large period of time.

The most important benefit of the higher capital and liquidity ratios announced by the Basel Committee is that they reduce the possibility of financial crisis. However the effectiveness of increasing the minimum capital and liquidity ratios to reduce the possibility of financial risk is ambiguous.

Brown (2010) states that implementation of Basel III regulations will be easy for big banks which were rescued by the tax payers but it will be difficult to meet new capital and liquidity obligations for the local commerce banks that have problems to meet the capital adequacy ratio in advance. Lehman Brothers was compatible with Basel III regulations on the day it was bankrupt. As Matai (2010) indicates Lehman Brothers was crowing about its 11% Tier 1 capital ratio to be almost three times more than the regulatory capital just five days before its collapse.

As Auer, Pfoestl and Kochanowicz (2011) claim that banks' available capital will reduce because of the strict capital definition and the increased risk weighted assets for securitizations, trading book positions and counterparty credit risk exposures. According to the Quantitative Impact Study (2010) full implementation of the Basel III Accord would reduce CET 1 Capital by more than 40 percent. Also, the new leverage ratio which is 3% may limit banks' scope of action. For these reasons, meeting the required capital adequacy ratio will be very difficult for some banks.



Blundell - Wignall and Atkinson (2010) point out that many finance experts and bankers criticize that Basel III does not bring anything new to the flaws in risk weighting which was the basic problem of the previous crisis. Blundell - Wignall and Atkinson criticize that Basel II Accord's weakest point is that portfolios with high risks are shown as possessing low risk through different derivative products and also while calculating capital adequacy these high risky portfolios taken into account as low risky by the banks. Banks do this by purchasing insurance contracts such as Credit Default Swaps which are not subject to any regulations. For instance, it is stated that AIG, the biggest seller of these kinds of contracts, went at the brink of bankruptcy on September 15, 2008 showed that these contracts were a cheat.

Cangürel et al. (2010) give place to another criticism about Basel III: banks will tend to move towards high rated public loan tools that are classified as low risky and as a result, the banks' portfolios will carry country risks in a serious proportion and also the private sector companies that have lower rates will enter to financial impasse as they will not be able to acquire funds.

Cangürel et al. (2010) maintain that in order for Basel III to be successfully implemented globally, all supervisory authorities in the world have to coordinate. Otherwise, a movement towards the countries that have less supervision from those that strictly implement the regulations brought up by Basel III will occur; therefore the global result expected from Basel III will not be accomplished.

The adaptation period is made long and gradual in order to minimize the cost of implementation of these new regulations. Although it reduces the cost, this long of transition period has raised some concerns. The most important of these concerns is that a long transition period will prevent a

quick adaptation of the new regulations, therefore causing the Basel III implementation to fail the desired level of success.

To conclude, as Auer et al. (2011) claim that related to the geographical area and lines of business of banks, the impact of Basel III will change from institution to institution. For instance banks which have more exposure in trading positions, a significant securitization portfolio, larger activities in derivatives, repo-style operations and securities financing activities will have more problems than others.

### **3. TURKISH BANKING SYSTEM AND BASEL ACCORDS**

#### **3.1 Basel I and Turkey**

Turkey accepted Basel I in 1988 which was published in that year and followed a gradual process in terms of application. Turkey applied 5% in 1989, 6% in 1990, 7% in 1991 and 8% in 1998 as the capital adequacy ratio. Following the crisis and developments, upon realizing that the formula, which only takes into account the credit risk is inadequate and that market risk has an important role in financial structures, market risk was added to the formula by the Basel committee in 1996. In Turkey, after the crisis in 2000 occurred because of the high exchange rate levels and interest rate fluctuations, BRSA brought the obligation to calculate the capital adequacy ratio by including market risk.

According to the 1988 Basel Accord, in OECD countries, the responsibilities of the banks are different from the banks which are not in OECD countries. All banks' claims' which have less than 1 year maturity weighted at 20%, OECD countries banks' longer-term claims are also weighted at 20% but non-OECD countries banks' longer-term claims are weighted at 100%. According to Basel I, Turkey was in an advantageous position since it is an OECD country. Because of this reason, the risk weight of the treasury bonds is 0% in Turkey.

Finally, it can be stated that Turkish banking system has been developing rapidly. By these developments, foreign investment rates have increased. For this reason, it has gained great importance to comply with the international standards in the banking sector. It is only possible to catch international banking standards by applying the Basel Accord and Basel Committee's suggestions.

### 3.2 Basel II and Turkey

Considering the positive and negative effects, Basel II is evaluated as an efficient opportunity for Turkish banking system by BRSA. While taking into account the international wideness of Basel II, delaying the implementation of these regulations may create some unpredictable costs.

In general, BRSA (2005) highlight the anticipated advantages of Basel II:

- Increasing effectiveness of the banks' risk management,
- Using banks' intermediary functions in an effective way,
- Being parallel the banks' capital level with the risks they exposed,
- Increasing market discipline with the banks' public announcements,
- Recovering management structures of the banks' customer companies.

As a result of high technological level of Basel II, it is needed to invest on human resources and information technology in an important level. Some effects of Basel II are independent from the implementation of it. For example, a foreign bank using Basel II Accord and providing fund to Turkish Treasury or Turkish banks, is enough for experiencing some effects of Basel II in Turkey. BRSA (2005) evaluates Basel II as a strategic building block for a bank to manage efficiently the risks, not as an editing or a calculating tool.

According to the results of quantitative impact studies, Basel II reduces the capital adequacy in a certain degree. However, capital adequacy level of Turkish banking system is high so this negative impact is not important for Turkey. According to the results of QIS-TR1 (2004), the total capital adequacy ratio for 23 bank, participating to the study, was 28.8% but the ratio decreased to 16.9% after the implementation of Basel II. It can

be observed that in QIS-TR2 (2007), the capital adequacy ratio decreased 5.6 points from 19.31% to 13.68%. In the QIS-TR3 study (2011), the ratio decreased 1.4 points from 18.35% to 16.95%. Considering the minimum capital requirement of Basel II which is %8, the capital adequacy of Turkey will be more than twice after the implementation of Basel II. As Yayla and Kaya (2005) point out, that is why, the excess capital of Turkey will make the transition process to Basel II easier. On the other hand, with the recovering process in the macroeconomic environment and with the implementation of Basel II, the loan proportion and the risk-weighted assets of banks may increase.

The decrease in the capital adequacy ratio is basically related to the high capital obligations of Basel II for the foreign currency denominated treasury bills and bonds and the operational risk which is added to the capital requirements. As specified by BRSA (2005), within the framework of Basel II, the 8.7 points of 11,9% decrease is the result of foreign currency denominated treasury bills and bonds and 2 points of 11.9% is related to the operational risk. On the other hand, the decrease in the capital adequacy ratio because of the loans given to the companies is 1.2%.

In the quantitative impact studies, the provisions of Basel II were applied to the current portfolios of banks. Possible changes on the banks' portfolio preferences, customers' credit value and macro level financial market were not taken into account in case of the implementation of Basel II. If some changes occurred in these fields, the effects of Basel II on the banks' capital liabilities may be different. For example, when the rating score of Turkey exceeds BBB level (investment grade); the capital requirement for the foreign currency denominated securities will decrease fifty per cent from 100% to 50%. Moreover, capital requirements will also decrease when the companies which are the clients of banks take good rating scores. Thus, the effects of Basel II on the banks' capital requirements are expected to be better than the results of quantitative impact studies.

In the context of Basel I, it was not an obligation to keep capital for the banks both the domestic and foreign ones, which make investment to Turkish treasury securities because Turkey is an OECD country. However, in the frame of Basel II regulations, it is predicted 8% minimum capital requirement for the foreign currency denominated government securities (Eurobonds and debt securities denominated in foreign currencies) because of the low rating score of Turkey. On the other hand, BRSA should determine the capital adequacy ratio for the government securities indexed to the Turkish Lira and foreign currencies. In the quantitative impact studies, BRSA determined this rate as 0%.

There are some opinions that Basel II will restrict the flow of funds to the developing countries. It should not be forgotten that the big banks which are the largest provider of funds, take into account the countries' rating score, while determining the price of funds. In other words, risk-based capital allocation and pricing cases which were already implemented will be a rule with Basel II. In this perspective, BRSA (2005) predicts that there will be no important changes in the cost of the Turkish treasury foreign borrowings because of the Basel II.

According to Basel II, the banks except foreign banks are subject to 100% risk weight, if the borrower bank uses the standardized approach. In Basel II, while calculating the credit risk by the standardized approach, foreign currency securities' risk weight are determined according to the country's rating. In this context, Turkey's risk weight is 100% because of the credit score of Turkey is scaled as BB. Banks, which give loans to Turkish banks, may evaluate the credit risk with the ratings given by the international rating agencies. As a result of this, according to Yayla and Kaya (2005) the amount of the loans might decrease or the cost might increase, because of Turkey's 100% risk weight. Especially, development banks will be affected by this issue because development banks have the biggest share in the foreign currency securities of Turkey.

Basel II predicts different risk management skills for each bank. Thus, the risk management methods show some differences according to the banks' scale and level of complexity. It is thought that Turkish national banks will apply the standardized approach easily. However, it has been known that there are some data limits in the advanced approaches. Çalışır and Şahin (2011) denotes that the presence of unregistered companies in Turkey and the structure formed by the missing data based on the accounting records which are not standard and banks' existing scoring system are important issues and this fact creates the need of a careful planning in the compliance process with Basel II. On the other hand, the borrowers, especially SMEs in Turkey have not got a rating score and Yayla and Kaya (2005) claims that this issue creates another limit for Basel II. These issues create the need of some calculations in line with Basel I.

Ayan (2007) claims that foreign banks in the Turkish banking sector may see Basel II as an advantage to reduce their costs. On the other hand, it has been thought that the transition to Basel II is needed for an effective banking system in Turkey.

While calculating the capital adequacy for credit risk, according to Basel-II, a part of Turkish banks (small banks) planning to implement the standardized approach. However a part of banks (medium banks) which are planning to implement IRB approach specify that they are going to use standardized approach at first and then they will pass IRB approach step by step. Operational risk definition which comes into a question after Basel II is the most important theme that the banking sector has been focused on because Turkey has a stable effort for the implementation of Basel II. In the investigations made, the concentration of the banking sector increased on the Pillar-I stage which has the most complex structure and long term preparation process.

The most obvious effects of Basel II Accord on the Turkish banking sector, is available with 3 structural blocks. In the context of first Pillar, operational risk added to the calculation of capital adequacy and some new methods were added in order to measure the credit risk. Second pillar gives some responsibilities to the banks as developing the internal evaluation processes and risk management skills, defining the capital targets and keeping capital more than the minimum capital requirements. Third pillar clarifies the public announcement issues and defines the scope, shape and frequency of these public announcements.

While investigating the crisis economies, it is observed that Turkey has experienced a serious devaluation in 2001 and as a result of this, many banks bankrupted. As for the Turkish banking sector, some wide scale regulations implemented after the economic crisis. These regulations are a part of the transition process to Basel II Accord. In 2001, a regulation comes into force which brings some restrict rules for banks' internal risk management systems. According to this regulation, banks should establish a risk management department and by this way an effective risk management system should be created. From this continuous process, banks who make important investments for human recourses and technological developments try to make their systems ready. At the current stage, most of the banks established internal rating systems and started to create a data set. Also, in 2002, a regulation which adds the market risk to the capital adequacy measurement came into effect. There is no doubt that these efforts are important for Basel II harmonization process.

Taşpınar (2007) indicates the possible effects of Basel II in the Turkish banking sector:

- a) Basel II will bring more effective and disciplined banking system.
- b) Basel II will develop modern risk management techniques.



- c) In Basel II the countries risk weight increases from 20% to 100%. This situation will increase interest costs of the syndicated loans which are taken from foreign banks and will decrease its amount.
- d) Basel II brings 8% of minimum capital requirement for the domestic and foreign banks which invest to the bonds, debt securities and Eurobonds exported by the Treasury due to the 100% risk weight of the country.
- e) Basel II decisions will contribute to the establishment of corporate risk and control culture in the Turkish banks by the settlement of effective risk management and internal control system. In addition, Basel-II will lead a healthy growth by making a contribution to the risk-based audit within the framework of an effective risk management. In this sense, the adequacy and effectiveness of the internal control system which has a 20% risk weight in the total risk factors will be extremely important.
- f) In the context of Basel-II regulations, implementing an effective risk management brings the need of a powerful equity structure and this need will increase the capital requirements.
- g) Basel II will bring a need of a capital adequacy which is a risk-sensitive against the risks that the banks are exposed to.
- h) The principle of “Separation of Power” will be used more efficiently between the banks’ marketing, operation and allocation groups.
- i) Basel II will contribute to the banks’ implementation of intermediary functions in an effective way.
- j) Basel II will lead banks to use risk indicators list effectively.
- k) With Basel II, importance of the maturity of loans will increase and for the loans which have less time remaining to the maturity, banks will allocate less capital than others.
- l) Basel II will contribute to the provision of the market discipline with the information that a bank should announce to the public.

- m) Basel II will increase the importance of risk management for banks and will help the banks to develop suitable risk management skills for the different risk scenarios.
- n) Basel II decisions will bring additional investment costs in the banks for the information technologies and human recourses.
- o) Basel II Will bring significant changes in banks' risk appetite and risk perceptions.
- p) With the implementation of Basel II decisions, the risk level of the loans given by the banks will affect banks' loan cost. In this period, the importance of ratings given to the companies by the independent rating agencies will increase. The lower rating score of a company will raise the banks' loan costs. Thus, the cost of a loan given to a lower rated company will increase.
- q) Banks' customer portfolio preferences will be companies who have high credibility and solid structure. By this way the loan interest rates for these companies will decrease.
- r) Increasing concentration of banks on the companies who have high credibility and low risk level will cause to the increased competition among the banks due to the pricing, reputation risk and regulatory capital arbitrage.

It can be said that Turkish banking sector in which the independent supervisions made, internal control and risk management functions performed and modern risk management techniques implemented, is ready for Basel II.

### **3.2.1 Problems Encountered by Turkey in the Process of Preparation for Basel-II**

In this section, the main problems encountered during the Basel II preparation process are summarized. In the Turkish banking system the

insufficient risk culture causes some important problems about the activities related to Basel-II.

Basel II Accord is needed to invest in human resources and information technologies because of its high technological level. According to BRSA (2006) resource allocation is the most important issue for the small and medium scaled banks in the preparation process. Another important difficulty for the banks which are planning to use advanced methods is the lack of collecting qualified data from a single source. The main reason of the difficulties about collecting data are the differences between the Basel requirements and banks' current data collecting systems and the lack of companies which have efficient documentation and accounting system. For this reason, the necessity of some regulations on the real sector is emerged with Basel II. BRSA (2006) points out that in the banks whose consolidation process continued or completed, the problems about combining information systems and customer data caused disruptions on the preparation process of Basel II. However, it is possible to overcome these problems only by the regulations and decisions taken in the frame of national initiative.

Office programs and web based software are used in order to operate loss database of the operational risk. In addition, the data obtained retrospectively are identified by the internal control and inspection reports and the accounting records and then transferred to the database. BRSA (2006) indicates that the most important difficulties about creating database are related to the reaching loss data from the past periods and quantifying the amount of losses.

In the banks, the transactions which cause operational loss are subject to analysis frequently. Some precautions are established in order to overcome these losses by investigating the business lines in which the operational risks are high. In addition, some pre-warning systems are formed against the components creating operational risk. Moreover in some

banks, self-assessment studies are applied in order to determine the points that constitute the operational risk. According to the study results, it is planned to create risk matrixes and hide the obtained information with the loss data in the operational risk database. By the studies conducted, it is aimed to identify and rate level of operational risks. On the other hand, in some banks, risk maps are prepared. In the self-assessment studies, it is aimed to quantify the operational risks by using these maps.

### 3.2.2 Comparison of QIS-TR3 Results with QIS-TR2 Results

The contribution amounts (the variation of the contribution of the related portfolio to the risk-weighted assets at the transition process from Basel I to Basel II) which were calculated by the QIS-TR2 (2007) and QIS-TR3 (2011) are shown in Table 3.1. While evaluating the table, it should be taken into consideration that there are differences between QIS-TR2 and QIS TR3 about the size of the included positions to the calculation, the banks included in the study and the regulatory provisions.

**Table 3.1 Portfolios' Contribution to the Risk Weighted Assets**

PORTFOLIOS	CONTRIBUTIONS (%)	
	QIS - TR2	QIS-TR3
Trading Books	6.29	5.18
Public Portfolio	18.58	7.05
Banks Portfolio	2.69	1.34
Non-SMEs Corporate Loan Portfolio	4.43	1.66
SMEs Corporate Loan Portfolio	1.44	0.41
Real Estate Loans Portfolio	-1.53	-1.4
Retail SME Loan Portfolio	-1.5	-1.64
Other Retail Loan Portfolio	-7.08	-4.18
Equity Investments Portfolio	0.0	0.0
Investments to Subsidiaries Portfolio	0.28	-0.01
Operational Risk	14.54	0.0
<b>TOTAL</b>	<b>38.1</b>	<b>8.41</b>

Source: Bankacılık Düzenleme ve Denetleme Kurumu, 2011, *Basel II Sayısal Etki Çalışması (QIS-TR3) Değerlendirme Raporu*, p. 53

QIS-TR2 study was done with September 2006 data and QIS-TR3 was done with March 2010 data. In QIS-TR2 study, 31 banks were included to the study from 50 banks and in QIS-TR3 45 banks were included to the study from 49 banks. Moreover, there are some differences between the provisions taken into account about the calculation capital adequacy. In addition, when QIS-TR2 was applied, there was not capital adequacy calculation for operational risks in Turkey. However; in the current legislation, banks should keep capital for the operational risk and this issue creates a big difference between QIS-TR2 and QIS-TR3.

The total contribution of QIS-TR3 shows important difference from the total contribution of QIS-TR2. When this difference is analyzed, the most important issue is that the operational risk contribution which is %14,54 in QIS-TR2 is %0 in QIS-TR3. Secondly, the important decline in the public portfolio is conspicuous. The 18,58% contribution of public portfolio in QIS-TR2, falls 11 points and became 7.05% in QIS-TR3. The reason of the high contribution of public portfolio in QIS-TR2 is that foreign currency denominated receivables of banks from the Turkish Treasury and Central Bank of Turkey had 0% risk weight in Basel I but they have %100 risk weight in the context of the standardized approach. In 2006, the share of foreign currency denominated securities which were included to QIS-TR2 was 6,72% but this rate declined to 1,49% in QIS-TR3. In addition, the fall of the foreign currency receivables in balance sheets of the banks decreased the negative effect of public portfolio on CAR in QIS-TR3.

In the both quantitative impact studies, retail loan portfolio reduced the Risk Assessment Value. In QIS-TR2, this decrease was 8,58%, in QIS-TR3 it becomes 5,82%. The main reason of this decrease is the less share of retail credit portfolio in the total RAV in QIS-TR3 period. Another remarkable point is the contribution of the corporate loans. The total contribution of corporate loans (Corporate SMEs and other corporate) reduced from 5,87% to 2,07% in QIS-TR3. Finally, the total contribution of

SMEs (Corporate and Retail SMEs) loans increased from -0,06% to -1,23% and this caused to the increase of CAR. As a result of the negative impact of SMEs loans on RAV, the cost of loans will reduce. Thus, by looking to the results of QIS-TR2 and QIS-TR3 it can be said that Basel II will have a positive effect on SMEs funding.

Briefly, it is observed that the absolute contribution of all portfolios except retail SMEs loan portfolio declined in QIS-TR3. Because of this reason BRSA (2006) claims that after the implementation of Basel II, the minimum capital which the banks should keep will not change in an important manner and the stability of Turkish banks will not affected.

While comparing QIS-TR2 and QIS-TR3, examining not only the contributions of the portfolios but also the changes of portfolios in RAV will be helpful. The shares of the portfolios in the sum of RAV at the QIS-TR2 and QIS-TR3 are shown in Table 3.2. Moreover, there is a decline in the loan portfolio given to the public, banks and SME's (Corporate and Retail SMEs) and the investment done to the subsidiaries portfolio. Especially, the decline in the public portfolio is a remarkable point. The reason of this remarkable decline is related to the decrease of the foreign currency denominated securities on the banks' balance sheet. On the other hand, in the increasing RAV shares, the important point is the non-SMEs corporate loan portfolios. It is increased from 20,87% to 31.83%. At this point, the remarkable point is the decline of the contribution of non-SMEs corporate loans from 4,43% to 1.66%, although the share of these loans increased.

It is thought that the increase of the share of non-SMEs corporate loan portfolio in RAV depends on the SME definition, which is different in QIS-TR2 and QIS-TR3. In QIS-TR3, a rule added to the definition of SME, an enterprise can become a SME if the number of employees is 250 or less than 250. For this reason, several companies move from the corporate SME

portfolio to the non-SMEs corporate portfolio. Another reason for the decreasing contribution of the non-SMEs corporate loan portfolio is the real-estate loans.

**Table 3.2 Changes of Portfolios in the Risk Weighted Assets**

PORTFOLIOS	RAV SHARE (%)	
	QIS - TR2	QIS-TR3
Trading Books	7.23	9.84
Public Portfolio	14.78	7.11
Banks Portfolio	4.83	4.77
Non-SMEs Corporate Loan Portfolio	20.87	31.83
SMEs Corporate Loan Portfolio	9.59	6.53
Real Estate Loan Portfolio	2.03	2.65
Retail SMEs Loan Portfolio	10.78	7.72
Other Retail Loan Portfolio	12.21	12.29
Equity Investments Portfolio	0.067	0.003
Investments to Subsidiaries Portfolio	1.06	0.43
Other Assets	5.8	3.64
Operational Risk	11.45	13.16

Source: Bankacılık Düzenleme ve Denetleme Kurumu, 2011, *Basel II Sayısal Etki Çalışması (QIS-TR3) Değerlendirme Raporu*, p. 53

In QIS-TR2, these types of properties could not be used as a collateral; however in QIS-TR3 these kinds of mortgages have 35% or 50% risk weight because of Turkey's use of national initiative. When we look to the other components of loan portfolios, there are some small increases in RAV shares expect the decreases in the SMEs portfolios.

### **3.2.3 Progress of Basel II in Turkey**

Creating the strategies and policies become a priority for the banks in the Basel II transition process. Important part of the banks in the sector prepared these strategies and policies and started to apply. Others continue to renew their strategy and policies. In the "Progress Report on Basel II Implementation" of BRSA (2012), it is shown that, the banks which are nearly 63% of the total sector worked about the strategies or policies of Basel II. Moreover 99% of the banking sector created superior management

team in order to work for Basel II. When the situation is evaluated, it is seen that banks which constitutes 47,7% of the total asset size of the market made an individual based transition to Basel II and 28,5% of the banks made consolidated based transition to Basel II by receiving approval from their board of directors about their strategies and policies.

BRSA (2012) evaluated the banks' compliance status of the credit risk, market risk, operational risk and second and third pillars of Basel II Accord according to their answers to the survey done in 2012. It can be seen that 55% of the banks adjusted to the basic internal ratings based approach and 46% of the banks adjusted to the advanced internal ratings based approach between the values of 50% and 100%. However, in the securitization process, the compliance of the banks was under 50%. All of the banks adjusted to the standardized approach in the market risk. The banks which are highly compatible (75% - 100%) with the internal ratings measurement methods, is 86% and 83% respectively. In the operational risks, 73% of the banks adjusted to the standardized approach over 50% but in the internal-ratings based approach, this rate stays at 60%. It can be seen that 93% of the banks adjusted to the rules of Pillar III between the percentages of 50-100. According to the banks' answers, the main problem is data missing in PD, LGD and EAD. Moreover the regulatory uncertainties and the lack of technology are other missing points. On the other hand, qualified personal, budgeting and understanding of Basel II are not important problems.

In order to calculate the regulatory capital, Turkish banks' current systems and infrastructures are convenient to use:

For the credit risk;

- 43.2% Basic Internal Ratings Based Approach
- 12,2% Advanced Internal Ratings Based Approach



For the market risk;

- 94,5% Internal Measurement Approach

For the operational risk;

- 28,7% Standardized Approach,
- 32,6% Advanced Measurement Approaches.

In the context of Basel II, important part of the banks are planning to use internal ratings based approach in order to calculate credit risk. Only 5,2% part of the banking sector declared that they will continue to use standardized approach. 92,9% of the banks declared that they are planning to use Advanced Internal Ratings Based approach.

**Table 3.3 Necessary Time for Turkish Banks to Use Advanced Methos**

Year	Corporate	Banks	Treasury Receivables	Corporate SME	Retail SME	Other Retail
0	0.1	2.1	5.3	0.1	0.1	0.1
1	24.6	12.5	9.3	12.4	9.2	9.2
2	32.3	13.6	13.6	33.4	36.6	40.4
3	9.5	22.7	22.7	9.5	9.5	4
4	11.6	21.3	21.3	22.7	22.7	12.8
4+	19.6	17.2	17.1	19.51	19.5	29.5
Not Prepared	2.6	9.9	10.1	2.7	2.7	3.4

Source: Bankacılık Düzenleme ve Denetleme Kurumu, 2012, *Bankacılık Sektörü Basel II İlerleme Raporu*, p. 9

In Table 3.3, it is possible to see when the banks will start to use advanced measurement methods for credit risk in their different portfolios after the implementation of Basel II. It can be understood that banks need more than two years even if the legislation is ready to use. An important part of the banks predicted more than two years especially in the receivables from the banks and Treasury portfolio. For these two portfolios, 10% of the banks did not declare any preparation. In addition, 2-3% of the banks did not declare any preparation for other portfolios.

In addition, all of the banks in the banking sector have been using basic indicator approach to calculate capital need for operational risks since the end of December 2011. 2.4% of the banks are planning to use basic indicator approach in the future in order to calculate operational risk regulatory capital. 78,7% of the banks are planning to continue to use advanced measurement approaches and 15,8% of the banks are aiming to use standardized methods. Moreover, according to the results of the survey, 85% of the banks are planning to use advanced measurement approaches earliest in 2014 and over 50% of the banks are planning to use advanced measurement approaches earliest in 2016. 13,8% of the banking sector declared that they are planning to use advanced methods by 2013 to calculate operational risk.

The banks which are 96,7% of the banking sector use internal approaches to calculate market risk. Nearly all of the risk measurement methods used by the banks cover the currency risk and market risk. According to this, 98,4% of the related models used by the banks covers currency risk and 94,7% covers general market risk. In addition, 64,9% of the related risk measurement models covers commodity risk, 39,6% covers counterparty credit risk and 23,7% covers specific risks.

Moreover, the banks who are 34,7% of the whole banking sector, are planning to switch to the implementation of economic capital allocation and 60% of the banks are in the establishment stage of the economic capital allocation model. The ratio of banks who has economic capital allocation model, is 3,8%. Also, by the answers of the survey, it is understood that 84% of the banks make measurements by defining the structural interest rate risk. On the other hand, 85% of the sector defined the context of the liquidity risk and use it in the analysis and 49% of the banks defined credit concentration risk and make risk monitoring on the related risks.

On the other hand, in the context of Pillar III, it is stated that banks are largely compatible with the public disclosure obligations except the portfolios subjected to IRB approach. Banks' compliance to the public disclosure obligations were evaluated within the framework of foreseeable risks of the first and second pillars: the banks which own approximately %65 of the sector's total asset size are largely or fully compatible with the public disclosure obligations about the credit risk under the standardized approach. However this ratio is 0.40% under the IRB approach. In the market risk, the banks which own 68.20% of the sector's total asset size are compatible with the public disclosure obligations under the standardized approach . Moreover, it is seen that 20.8% of the sector are compatible under the IRB approach. In the operational risk, 20.7% of the sector are partially compatible and 1.90% are not compatible about the public announcements. In terms of operational risk, the large or full compatibility ratio of the announcements is 67.7% of the sector.

### **3.2.4 Implementation of Basel II in Turkey**

In Turkey, the parallel implementation period of Basel I and Basel II finished and from the beginning of July 2012, Turkey started to apply only Basel II.

According to the reports given to BRSA at March 2012, 1,2 point CAR decrease is expected. Despite this decline, the capital adequacy ratio does not decrease under the regulatory and aimed ratio. As it is known, in Basel I, the criteria of OECD membership was used while giving the risk weights to the assets. However in Basel II standardized approach, risk weights are calculated according to the credit ratings. Countries' supervisory authorities can use their initiative for the receivables from countries' treasuries and central banks. By this initiative, it is possible to give a risk-weight between 0-100% to the national currency denominated and funded receivables. Thus, foreign currency denominated public receivables have 100% risk weight due to the Turkey's current rating. On

the other hand in the context of national implementation choices, the domestic currency receivables from the Turkish Treasury and Central Bank are subject to 0% risk weight if they are funded in TL currency.

In the current approach;

- The housing loans which have 50% risk weight will be weighted as 35% under Basel II standardized approach.
- According to Basel I, the cash secured corporate loans have 0%, real estate secured loans have 50% and other loans have 100% risk weight. In Basel II, these risk weights determined according to the corporates' ratings.
- In Basel I, retail and SMEs loans have 100% risk weight, however if these receivables have a credit protection, the risk weight may decrease. In Basel II, these kinds of receivables classified in 75% risk weight. Non-rated companies will be weighted in 100%.
- Individual credits which should be weighted in 75% will be weighted between 150% and 200%.

### **3.3 Basel 2.5 and Turkey**

As mentioned before, Basel 2.5 focuses on developing of the lacking points of market risk calculation methods of Basel II and determines the capital requirements occurred from the securitization positions. In the current legislation, the amount of market risk is calculated by using the risk measurement models or standardized method; however the usage of risk measurement models is subject to the permit of BRSA. At present, there is no approved bank from the BRSA in order to use risk measurement model for calculating the market risk. On the other hand, the securitization operations used in the sub-standard mortgage market which are shown as the main reason of the global financial crisis are not used in Turkey widely. For this reason, it is expected that Basel 2.5 suggestions will not have important consequences in Turkey.

### 3.4 Basel III and Turkey

When past and current studies are considered, it is obvious that Turkish Banks will not need a great deal of capital if they adapt Basel III regulations. The structure of capital in the Turkish Banking system shows that the ratio of capital like loans in equities are low, whereas common equity components such as paid capital, profit reserves and undistributed profit are higher.

The concept of Tier 1 in Basel III represents the core capital with some changes in Turkey's legislation. Supplementary capital is called Tier 2. Some of the said changes are below;

- Assets deducted from capital are deducted from the total of core and supplementary capital in Turkey when calculating the equity, while in Tier 1 calculation ADCs are deducted as 50% from the core capital and 50% from the supplementary capital.
- The minimum capital adequacy ratio is formed in respect to the  $(\text{Core Capital} + \text{Supplementary Capital} - \text{ADC}) / \text{RAV}$  ratio. On the other hand, while our current legislation has no direct minimum capital adequacy ratio for Tier 1, the rule that prohibits the supplementary capital from being more than 100% of the core capital assures that the ratio of the core capital is high.

**Table 3.4 Equity Items of Turkey**

As of June 2010	Amount(*1000TL)	Percentage
Tier 1 Capital	113.055.045	91.2%
Paid in Capital	46.297.649	37.3%
Retained Earnings	62.430.683	50.4%
Other	4.326.713	3.5%
Tier II Capital	12.320.900	9.9%
Tier III Capital	0.0	0.0%
Deductions	1.392.234	1.1%
Total Own Funds	123.983.711	100.0%

Source : Delikanlı, İ. U. 2011, *Road to Basel-III: Strategies and Priorities of the BDDK*, p. 17

As seen on Table 3.4, total core capital (Tier 1 Capital) forms 91.2% of total equity and supplementary capital (Tier II Capital) is 9.9%. Paid-in capital and retained earnings which are the most important components of the core capital, form 37.3% and 50.4% of the total equity capital respectively and indicate that the sector is functioning with a high quality capital. The Tier III capital component removed from equity calculations with the implementation of Basel III did never exist in Turkey so this situation will not affect Turkey's banking sector. In consideration of the information above, Cangürel et al. (2010) claim that the difference between capital adequacy and common equity adequacy ratio in Turkish banks will be less than those of USA and Europe. This subject is more important for the banks of USA and Europe as components that are not defined as common equity but take place in the total capital are high. In addition, the fact that Turkey had set a minimum target rate of 12% in the year 2006 in addition to the accepted 8% capital adequacy rate are the most effective proactive precautions in order to prevent the banks from having capital shortages. The capital adequacy ratio of the Turkish Banking Sector is 19.2% as of June, 2010 and 16.5% as of June 2012, which is well above both the regulatory limits and the target rate.

The liquidity ratio that is calculated for a one-month term in Turkey is largely compatible with the Liquidity Coverage Ratio brought up with Basel III. In fact, Cangürel et al. (2010) indicate that when the changes brought up by Basel III are examined from the point of content, subjects regarding liquidity and capital buffer are largely in line with the proactive precautions taken by the BRSA before the financial crisis. For example, the regulations and the additional acid-test ratio implemented by the BRSA in 2006 brought up principals regarding liquidity risk evaluation and management while Basel II did not determine any standards about the evaluation of liquidity risk in the Pillar II. Said regulations implemented by the BRSA contributed greatly to Turkish banks' smooth functioning without liquidity problems during the global crisis.

Similarly adapted “Tighten in expansion, loosen in recession” philosophy and “Target Capital Adequacy Ratio” implementation brought up by the BRSA can be viewed as proactive precautions. Cangürel et al. (2010) claim that by the general framework of effective liquidity management formed with both a strong and well supervised banking system and experiences from previous crisis, Turkey has entered the global crisis period very well prepared. In this context, a series of precautions are taken regarding the foreign exchange market and the banking system foreign exchange liquidity with the monetary policy exit strategy carried out by the Turkish Central Bank. (Suspending of foreign exchange purchase biddings, commencing of foreign exchange sale biddings, restarting foreign exchange deposit broking activities, deducting two points from the compulsory foreign exchange cash reserve ratios, raising the export rediscount loan limit, etc. ) With the said regulations, Turkish Central Bank need to take additional radical precautions lowered and the bank’s balance sheet structure remained intact. On the other hand, while Basel III Accord allows banks to leverage their equity up to 33 times, this rate is 12 times in the Turkish banks so it is possible to say that the leverage border will not limit Turkish banks.

According to Cangürel et al. (2010) in situations where the CAR is close to the minimum level, the subject of failure of raising assets, in other words loans and unsecured loans might come up. Outcomes of the crowding-out effect may vary, depending on the conjuncture of the economy (acceleration or deceleration of economic growth) and priorities (growth or fighting inflation). In order to analyze as such, the CAR has to be close to the minimum level. However, said rate is considerably high in Turkey and it is difficult to state that the minimum level of the CAR will have a negative effect on growth in the current situation.

#### **4. GENERAL VIEW OF TURKISH BANKING SYSTEM**

While the effects of the global crisis on the international financial markets are still continuing, CBRT (2012) denotes that Turkish banking sector is protecting its powerful and healthy structure. By the contribution of capital inflows and implemented flexible monetary policies, the value of the Turkish Lira remained stable compared to other developing countries. In general, the upward trend of the loans including seasonal effects remained at reasonable levels. As it is desired, credit growth is mainly resulted from the corporate loans and the growing rate of the consumer loans is slower. General structure of the loans consists of Turkish lira denominated and mid-long term loans and this tendency is evaluated as positive about the management of credit risk.

With the implementation of Basel II on July 2012 although a limited decline is expected in the capital adequacy ratio, the CAR will be above the legal ratio which is 8% and the target ratio which is 12%. In this context, CBRT (2012) predicts that there will be no difficulty with Basel III Accord which Turkey's compliance process is still continuing. Thus, within the framework of Basel III regulations, for the Turkish banking sector the share of the common equity (that includes elements which have a high capacity to meet loss) in Tier 1 capital is approximately 90% as of March 2012. The profitability of the sector started to rise with the first quarter of 2012.

The re-increase of the sector profitability and the creation of retained earnings without distributing the profits strengthen equities of the banking sector. Although there are so many uncertainties on global financial markets, Turkey has no problem with providing funds from foreign countries. The strong structure of banking sector has positive effects on the financial stability. However, it is inevitable to implement macro-prudential



measures in order to protect financial stability against fast changes of the global markets. For instance, export rediscount credits which strengthen foreign currency reserves and balance foreign trade by supporting export sector are another policy tool. Moreover, the limits of these credits which are given via Exim Bank, increased and some facilities are done for using these kinds of credits.

On the other hand, statutory reserves have been used since 2010 in an active way to decrease macroeconomic and financial risks and protect financial stability. The statutory reserves' liabilities are differentiated according to their maturities and this contributed to the decrease of the banks' asset-liability maturity mismatches. While taking into account the rapid increase of the loans, the statutory reserves are increased in several times especially for the short-terms loans. From the second half of 2011, discounts were done in the statutory reserves because of the financial problems in the developed EU countries and deceleration in the global economy to provide liquidity.

#### **4.1 Balance Sheet Sizes**

In Table 4.1, balance sheet sizes of the banking sector between the years 2000 and 2009 are given. The rapid increase of the total assets is remarkable. The share of financial assets in total assets increased until 2003 and gradually decreased after 2003. Also, the share of loans in total assets increased. This increase indicates that banks directed from the government securities to the loans. In the liabilities part of balance sheet, it is observed that banks continue to grow based on deposits and increase in deposits between 2000 and 2009 is 641%.

**Table 4.1 Turkish Banking Sector Balance Sheet Sizes (2000-2009)**

<b>Billion TL</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Assets</b>	104,1	166,4	216,5	250,7	307,2	397,8	485,8	562,3	708,4	801,8
Liquid Assets	21,5	38,5	34,4	36,3	43,0	63,2	74,2	74,8	100,9	102,6
Financial Assets	12,0	16,9	86,1	106,9	123,7	143,0	168,3	175,9	207,8	280,9
Non-Performing Loans	1,5	4,3	3,7	1,0	0,8	0,8	0,8	1,1	2,5	3,2
Credits	34,2	41,0	56,4	70,0	103,2	153,1	218,1	280,5	366,9	381,0
Non-Current Assets	13,9	51,6	18,3	19,3	22,1	20,1	17,3	19,2	19,7	22,5
Other	21,0	14,1	17,6	17,2	14,4	17,6	7,1	10,8	10,6	11,6
<b>Liabilities</b>	101,9	164,2	212,7	249,7	306,5	397	484,9	561,2	705,9	798,5
Deposits	68,4	117,1	142,4	160,8	197,4	253,6	312,8	357	453,5	507,3
Non-deposit Sources	19,8	26,6	31,5	39,1	45,3	66,9	87,2	91,6	125,2	137,7
Equity	5,0	9,7	25,7	35,5	46,0	53,7	58	73,5	82,7	106,5
Other	8,7	10,7	13,1	14,3	17,8	22,7	26,8	39,1	44,5	47,1

Source: Coşkun, M. N., Ardor, H. N., Çermikli, A. H., Eruygur, H. O., Öztürk, F., Tokathoğlu, İ., Aykaç, G., Dağlaroğlu, T. 2012, *Türkiye’de Bankacılık Sektörü Piyasa Yapısı, Firma Davranışları ve Rekabet Analizi*, p. 32

Banks' return on assets and return on equity are shown in Table 4.2. Return on assets is calculated by dividing a company's annual earnings to its total assets. On the other hand, return on equity is calculated by dividing a company's net income to the equity. The data shows that the Turkish banking sector is developing. It can be observed that the profits in the banking sector increased continuously except for the year of 2008. Moreover, as stated by Coşkun et al. (2012) it might prove an increase of the profits because of the decrease of the competition pressure in the system or the limited level of competition in the market.

**Table 4.2 Return on Assets and Equity**

	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Return on Asset</b>	-3,6	-3,8	1,4	2,2	2,1	1,4	2,3	2,6	1,8	2,4
<b>Return on Equity</b>	-89,8	-69,9	11,2	15,8	14,0	10,6	18,9	19,5	15,5	18,3

Source: Coşkun et al. 2012, *Türkiye’de Bankacılık Sektörü Piyasa Yapısı, Firma Davranışları ve Rekabet Analizi*, p.49

Table 4.3 gives the opportunity to compare asset sizes of the Turkish banking system with 27 EU countries and some selected member countries. While comparing the total assets in 2008, European Central Bank (2010) points out that Turkey was in 15<sup>th</sup> place among 27 EU countries. Especially 2008 and 2009 are the years that the crisis is felt seriously in the Euro zone. In the Euro zone, the total asset sizes of credit institutions, insurance companies, mutual and pension funds were interrupted in the second quarter of 2008. On the other hand, the total asset size of banking sector continued to grow. ECB (2010) indicates that in 2009, the total assets of the banking sector in the euro zone composed 75% of the total system which consists of insurance companies and investment and pension funds. In this context, despite the financial crisis, assets continue to grow on average in the Euro zone because of the rapid growth of the banks' assets of new member countries.

**Table 4.3 Asset Sizes of EU and Turkish Banking System**

<b>Billion Euro</b>	<b>2002</b>	<b>2008</b>
<b>EU<sup>27</sup></b>	25.312	42.209
<b>Turkey</b>	127	343
<b>UK</b>	5.856	8.840
<b>Germany</b>	6.370	7.875
<b>France</b>	3.832	7.225
<b>Italy</b>	2.024	3.628
<b>Holland</b>	1.356	2.235
<b>Luxemburg</b>	663	932
<b>Greece</b>	202	462

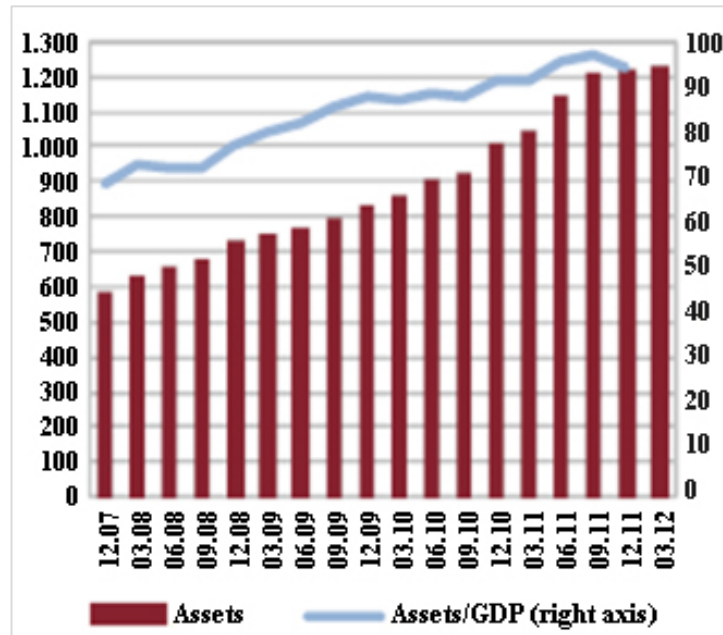
Source: Coşkun et al. 2012, *Türkiye'de Bankacılık Sektörü Piyasa Yapısı, Firma Davranışları ve Rekabet Analizi*, p. 62.

The financial assets of Turkey had 11% improvement of the total GDP between the years 2003 and 2007. The most important factor which contributed to this improvement is 26% decline of the net debt ratio of the public sector (Central Government and Central Bank), 10% increased leverage by the household and 5% increase of the non-financial sector. As a result, the net liability of the economy takes place at 8% of the total GDP. In

2008, net financial position increased because the value of TL depreciated and net financial liabilities of the companies increased. As a whole, in 2009, net financial assets showed an improvement.

Compared with the previous year, in December 2011, the total assets of the Turkish banking sector increased 21% nominal, 9.5% real and became 1.218 billion Turkish Liras as seen in Chart 4.1. Thus, the total balance sheet size of the Turkish banking sector to GDP ratio increased from 91.6% (December 2010) to 94% in December 2011. In March 2012, the asset size of the banking sector was 1.229 billion Turkish Liras.

**Chart 4.1 Turkish Banking Sector Growth (Billion TL,%)**



Source: Türkiye Cumhuriyeti Merkez Bankası, May 2012, *Finansal İstikrar Raporu*, p.35

## 4.2 Credits

A comparison with the Euro zone might draw a picture of the lending capacity of the Turkish banking system. In Table 4.4, the credit stocks of the Turkish banking system, 27 EU countries and some selected countries are shown.

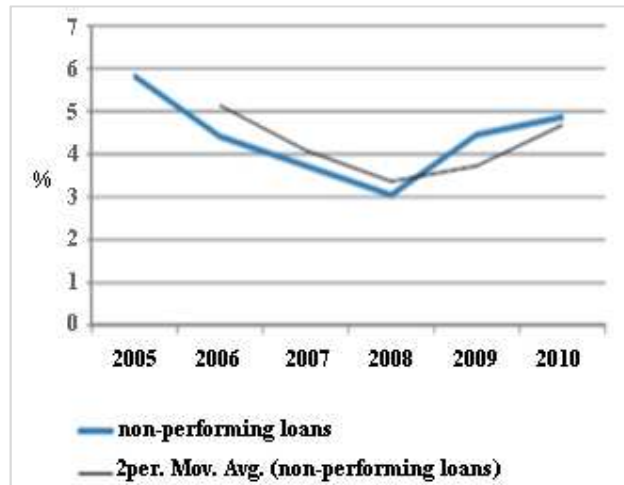
**Table 4.4 Credit Stocks of EU and Turkey**

<b>Billion Euro</b>	<b>2002</b>	<b>2008</b>
<b>EU<sup>27</sup></b>	11.076	19.275
<b>Turkey</b>	30	172
<b>UK</b>	2.195	5.118
<b>Germany</b>	3.022	3.229
<b>France</b>	1.370	2.290
<b>Italy</b>	1.066	1.808
<b>Holland</b>	704	1.098
<b>Luxemburg</b>	132	203
<b>Greece</b>	95	221

Source: Coşkun et al. 2012, *Türkiye’de Bankacılık Sektörü Piyasa Yapısı, Firma Davranışları ve Rekabet Analizi*, p. 63

Through the measures taken during the crisis like the changes occurred in the profitability rates and decreased interest rates provided an improvement in the banks’ profits and capital ratios by the high interest margin. This improvement also compensated the increased non-refundable credits during the crisis period as seen in Chart 4.2.

**Chart 4.2 Increase in the Non-Refundable Credits**

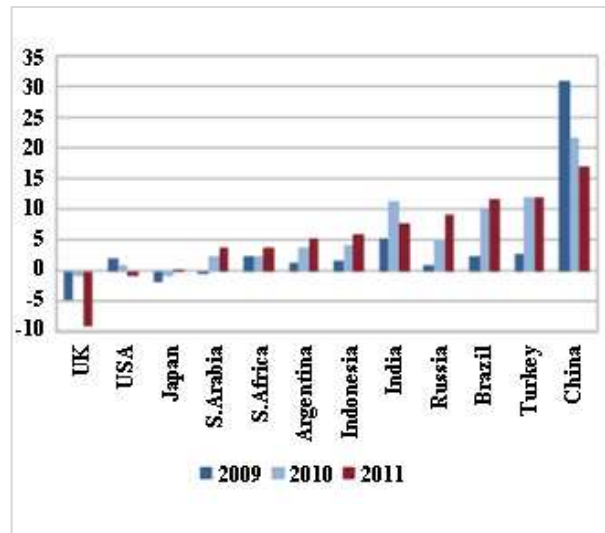


Source: Coşkun et al. 2012, *Türkiye’de Bankacılık Sektörü Piyasa Yapısı, Firma Davranışları ve Rekabet Analizi*, p. 193

Because of the fragile structure of the global financial market, credit growth lost momentum in many countries. In parallel with the developments in the local and global financial markets, the ratio of the credit growth to

GDP in USA, UK and Japan continue to decrease in 2011 but in the developing countries, the ratio remains high in spite of the loss of momentum as it can be seen in Chart 4.3.

**Chart 4.3 Credit Growth / GDP (%)**



Source: Türkiye Cumhuriyeti Merkez Bankası, May 2012, *Finansal İstikrar Raporu*, p.37

### 4.3 Deposits

Deposits and the share of deposits in total asset are shown in Table 4.5. The change of deposits in the total assets shows diversity from one country to another. The share of deposits in the total assets decreased in Turkey, France, Italy, Greece and Luxemburg while it increased in UK, Germany and Holland. ECB (2010) asserts that the reason of the increased deposits in some of the member countries' banking system in 2008 and 2009 is the banks' efforts to collect deposits which are stable resources due to the increase in the interest rates. Another reason of the increased deposits in the total assets is the household's transfer of financial resources from the non-banking sector to the banking sector as it is safer.

**Table 4.5 Assets of EU and Turkish Banking System and Deposits to Assets Ratio**

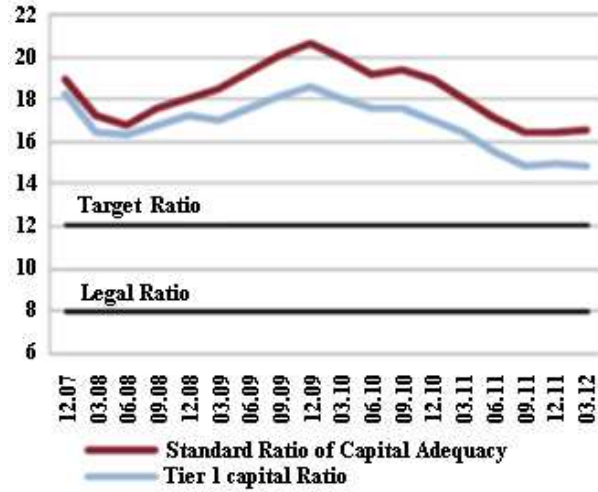
	2002		2008	
	Billion Euro	Deposits/ Assets	Billion Euro	Deposits / Assets
<b>EU</b>	9.104	36	16.788	39,8
<b>Turkey</b>	83	65,4	209	62,1
<b>UK</b>	3.347	57,2	5.857	58,5
<b>Germany</b>	2.446	38,4	3.067	39
<b>France</b>	1.078	28,1	1.670	23,1
<b>Italy</b>	764	37,7	1.189	32,8
<b>Holland</b>	539	39,7	1.001	44,8
<b>Greece</b>	134	66,3	281	60,8
<b>Luxemburg</b>	200	30,2	263	28,3

Source: Coşkun et al. 2012, *Türkiye’de Bankacılık Sektörü Piyasa Yapısı, Firma Davranışları ve Rekabet Analizi*, p. 68.

#### **4.4 Capital Adequacy and Equity**

In Turkey, the capital adequacy ratio of banking system which has decreased since the beginning of 2011 showed a limited increase at the end of the year. The capital adequacy ratio is quite above the legal ratio which is 8% and target ratio which is 12%. As seen in Chart 4.4, in March 2012, the CAR value of the Turkish banking sector is increased 0,1 points and became 16,6% which was 16,5% at the end of 2011. CBRT (2012) points out that the reason of the limited increase in the capital adequacy ratio of the sector is the improvement in the profitability performance and the slowdown in the credit growth. On the other hand, the share of Tier I capital in the total equities was about 90% in March 2012 and this shows the high quality of the equity components of the sector. In fact, Tier I capital ratio reached a high level which is 14,9% at the end of 2011.

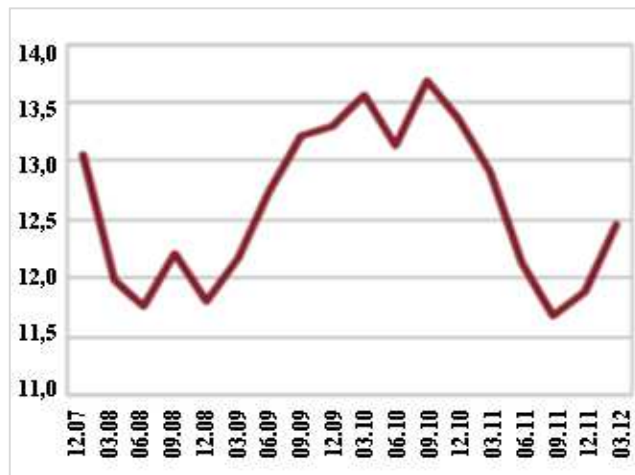
**Chart 4.4 Capital Adequacy Ratio - Turkey (%)**



Source: Türkiye Cumhuriyeti Merkez Bankası, May 2012, *Finansal İstikrar Raporu*, p.54

Moreover, it can be seen in Chart 4.5 that the equity to assets ratio was in a rising tendency and it was 11,9% at the end of 2011 and 12,5% in March 2012. Equity structure of the banking sector is positively affected from the increase of the sector's profitability performance and securities fund, the limitation of the banks' distribution of profits by the BRSA and from the provision of important amount of retained earnings by this way. However, by the implementation of Basel II in July 2012, a limited decrease in the capital adequacy ratio is predicted.

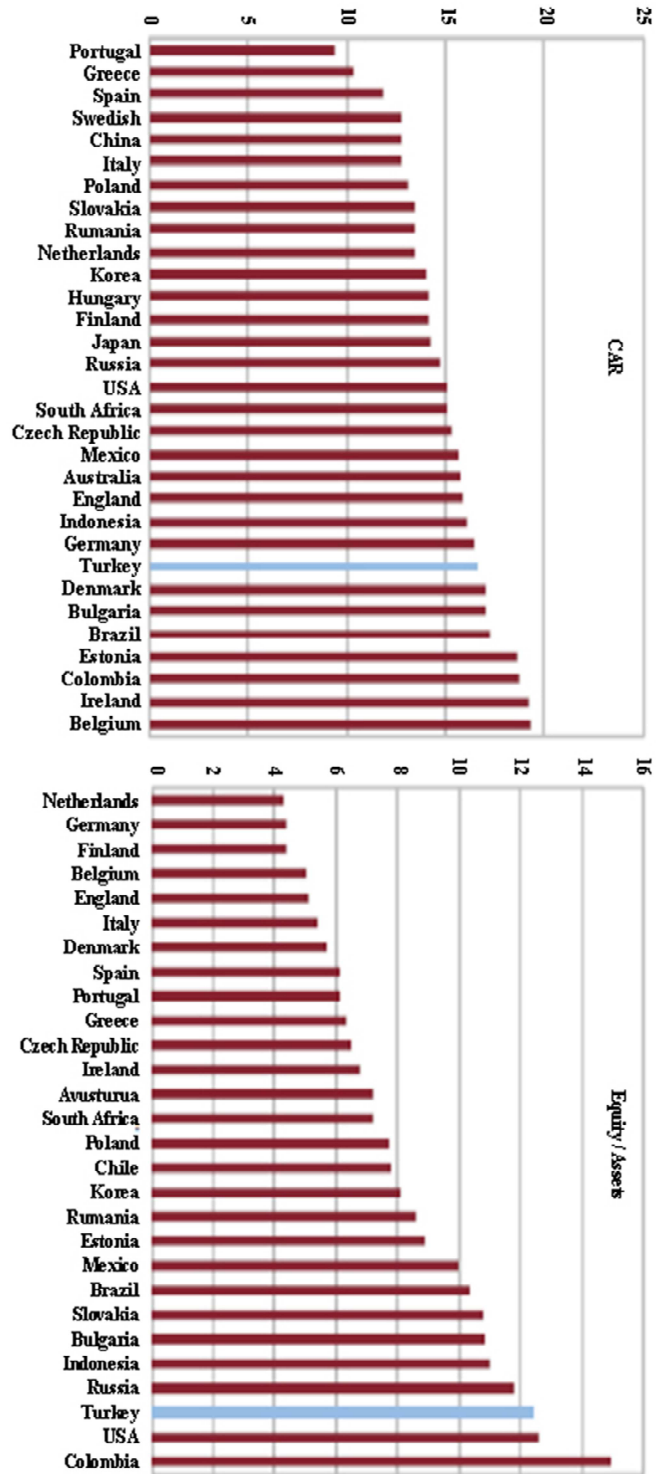
**Chart 4.5 Equity to Assets Ratio - Turkey (%)**



Source: Türkiye Cumhuriyeti Merkez Bankası, May 2012, *Finansal İstikrar Raporu*, p.54.



**Chart 4.6 Country Based CAR and Equity to Assets Ratio (%)**



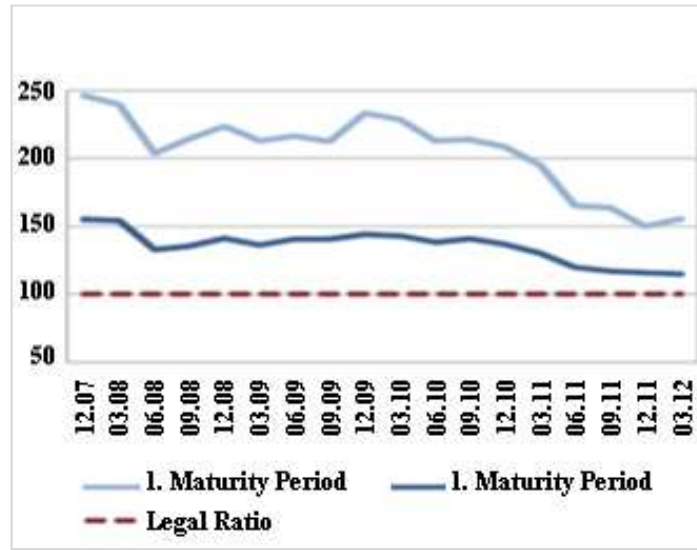
Source: Türkiye Cumhuriyeti Merkez Bankası, May 2012, *Finansal İstikrar Raporu*, p.54.

Compared to other countries, as seen in Chart 4.6 Turkey is among the countries that has high rates in the capital adequacy ratio and the equity to assets ratio. Despite the expectations about the decrease of the CAR in the transition process to Basel II/2.5, the sector will maintain its current level of profitability performance and will protect its strong capital structure. Also, while there will be a limited decline in CAR by the implementation of Basel II in July 2012, it is predicted that the CAR will be still above the legal ratio (8%) and the target ratio (12%). In this context, it is expected to have any difficulty in the transition process to Basel III whose compliance efforts are still going on. In Turkey, within the framework of Basel III regulations, the share of common equity including components that have high capacity to meet loss in the Tier 1 capital are at the levels of 90% as of March 2012.

#### **4.5 Liquidity Adequacy**

One of the main reasons of the last financial crisis was the extreme leverage rates and the weak liquidity situation of the banks. The possibility to establish Turkish Lira statutory reserves as gold and foreign exchange affects the banking system positively through the liquidity and cost channels. By this way banks' need of Turkish Lira liquidity and their borrowings from the Turkish Central Bank reduced. Although the ratio of the liquid assets to the total assets deteriorated, it is possible to see in Chart 4.7 that the total liquidity adequacy ratio of the banking sector is above the legal rate which is 100%. It can be said that the liquidity ratio of Basel III will not negatively impact the profitability of the Turkish Banking Sector.

**Chart 4.7 Liquidity Adequacy Ratio - Turkey**



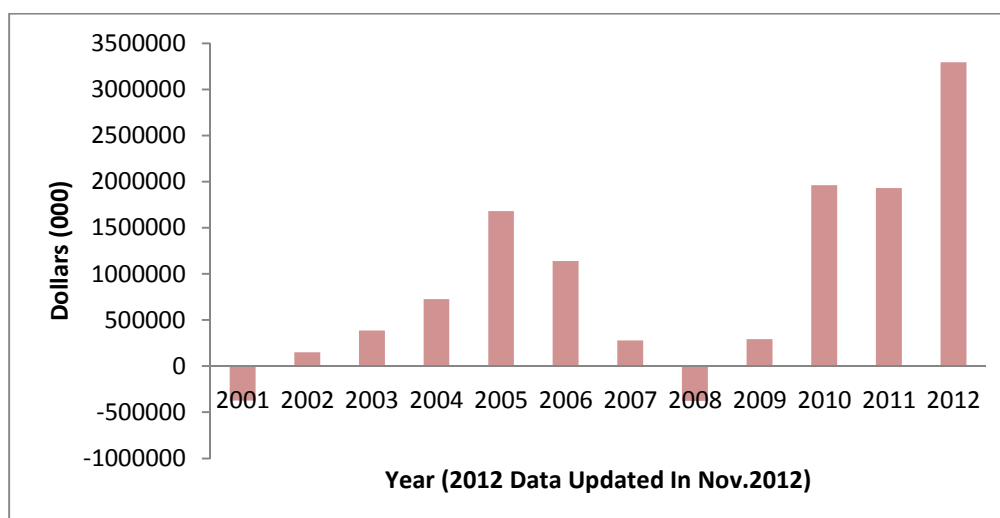
Source: Türkiye Cumhuriyeti Merkez Bankası, May 2012, *Finansal İstikrar Raporu*, p. 46.

#### 4.6 Portfolio Investment Liabilities in Turkey

Portfolio investments are includes public or private sector's bonds, securities, stocks and other money market instruments. Portfolio investments are classified as assets and liabilities under the main headings: equity and debt securities. There are many national and international factors which affect the increase and decrease of the foreign capital flow. These are general macroeconomic stability, national economic growth, exchange rate stability, interest rates, liquidity of the stock market, general situation of the foreign banking system.

As seen in Chart 4.8, 2001 and 2008 are the years which portfolio liabilities of Turkey are in the lowest level because of the 2001 Turkish economic crisis and 2008 global financial crisis. The sum of Turkey's liabilities to the foreign countries was 601,3 billion dollars as of November 2012. Provided net foreign source was 62 billion dollars in the first 11 months of 2012 and approximately 57% of this foreign source flows to Turkey by the portfolio investments.

**Chart 4.8 Portfolio Investment Liabilities in Turkey**



Source: Türkiye Cumhuriyeti Merkez Bankası

Especially, the portfolio investments have accelerated in July 2012. Foreign investors made investments to the securities and bonds in Turkey because they found the financial assets' prices as cheap and returns as high. They think that returns will decrease and prices will increase in the future because Turkey's current accounts deficit tended to fall after the extreme increase in 2011, inflation was high but it has a tendency to decrease and there was a expectation of increase in Turkey's credit rating. Also, the depreciation of Turkish Lira in the second half of 2011 and first three months of 2012 became effective in the decisions of foreign investors.

The Institute of International Finance predicts that flow of funds to the developing countries will gain momentum in 2012 because of the rapid economic growth of these countries and very low interest rates. According to the data of Institute of International Finance (2012), capital flows to the developing countries will reach to 1,026 billion dollars in 2012 and 1,100 billion dollars in 2013. On the other hand, Fitch increased Turkey's credit rating from BB+ to BBB- which is the adequate level to become an investable country and this situation may affect positively the funds flow to Turkey.

## **5. DISCUSSION**

### **5.1 Basel I Accord and Necessity for Basel II Accord**

As mentioned before, because of the global financial crisis occurred in 1970 and 1974 and adopted liberal economic policies in many countries, Basel Committee issued Basel I Accord in order to make banks' structure stronger which are the most important actors of the capital market. With this accord, Basel Committee tried to establish a risk based relation between the assets of the international banks and their capital.

Basel I Accord focused on the minimum capital in order to minimize the costs of the depositors in case of a bankruptcy. The methods which are used by Basel I for measuring the market and credit risks that a bank is exposed are;

- Lacking of measuring banking risks in a realistic way,
- Unable to take into account the price fluctuations in the financial market,
- Unable to supervise the differences of the banks' portfolio creating behaviors.

Because of these reasons, the expansion of the scope of Basel I Accord and creation of more precise risk measurement and management methods became increasingly a necessity.

In order to resolve the shortcomings and make healthier the risk measurement methods of Basel I, Basel II Accord was established in 2004 by the Basel Committee. It is possible to see the main differences between Basel I and Basel II in Table 5.1.

**Table 5.1 Comparison of Basel I and Basel II**

<b>Basel I Accord</b>	<b>Basel II Accord</b>
Taking into account only credit and market risks while calculating CAR	Making CAR more sensitive against risks and taking into account operational risks while measuring the credit risk
OECD membership differentiation while determining the ratings related to the credit risk	Use of the ratings given by the rating agencies to measure credit risk
Using only one risk measurement method	While providing alternative methods for each risk category, encouraging banks to use internal measurement methods
Same treatment by the supervisory authority to all financial institutions	Putting emphasis on importance of the risk management and spread of the risk culture
Putting emphasis only on CAR	Putting emphasis on CAR, the necessity of the audit and supervision and necessity of the market discipline

## **5.2 Reasons of the Global Financial Crisis**

All the regulations done could not avoid the problems which started in the USA estate market and the spread of the crisis from the developed countries to developing countries.

Firstly, the most important factor of the crisis is the securitization. By the securitization, new financial assets were created and these assets were sold to the investors in the whole world. Globally, regulations related to the banking sector give banks the opportunity to keep the risk out of their balance sheets by the securitization of credit. The new financial products like the structured credits and the ability to exclude risks out of the banks' balance sheets and large-scaled complex banking system became effective in the spread of liquidity crisis from the banking system to USA markets and the whole world. In addition, the other important reason of the crisis is the weak underwriting. The meaning of the weak underwriting is the implementation named "risk layering". Instead of the traditional

mechanism, a bank who gives mortgage loans did not keep these assets until their date of maturity and sells these assets by securitizing them with financial intermediaries' channels. In that system, the bank or intermediary who gives the loan is not affected from the repayment of the borrower because the lender disposes of the loan before its date of maturity comes. Moreover, in that system unlike the traditional banking system, the lenders are not curious about the correct evaluation of the loan. By the Recourse Rule which is an American amendment of the Basel Accord, the capital amount that banks should hold against the securitized assets is associated to the rating system. Friedman (2009) gives an example:

“Under the Recourse Rule, American commercial banks were required to hold 80 percent more capital for the commercial loans, 80 percent more capital for the corporate bonds, and 60 percent more capital for the individual mortgages than they had to hold for the asset-backed securities, including mortgage-backed securities rated AA or AAA.”

By this regulation, banks reduce the amount of capital that should be kept by collecting the mortgage loans into a pool and by securitizing these assets instead of holding them in their balance sheet.

In the spread of crisis derivative markets became also effective. These markets served as a mechanism which spreads the crisis between the financial markets and financial intermediaries. Derivative markets expanded globally because financial intermediaries meet capital adequacy ratio by hedging the derivative products and gain some advantages about risk management by decreasing the VAR value. The most important decision taken by the Basel Committee in 1998 is that a bank should increase the amount of capital for risky assets. However, the capital adequacy rules determined in the Basel I Accord contains more lax regulations for the mortgage loans and mortgage backed securities compared to the commercial and consumer loans. By using the derivative products, banks can hedge the

market or credit risk so they can keep less capital for the risks related to other activities or trading transactions. Thus, the over-the-counter derivative markets increase the leverage ratio and gives the opportunity of entering equity swap transactions to the big scaled banks and investment banks. Moreover, the cause of the banks to retain securities with high credit quality is the regulations developed about the capital adequacy by Basel II. The capital adequacy ratio varies according to the expected risk from the investments. For example, if a bank holds a Treasury bill or government bond of a relatively safe country, it should separate less capital against possible risks. Before the global financial crisis, mortgage backed securities with high credit quality, CDO's and similar type of securities were assessed as low risk weighted and the regulatory authorities thought that these types of securities are safe.

Another distortion in the financial system which was seen before the crisis is the increase in the leverage ratios. One of the reasons which increase the leveraged transactions is the rise of the rate of return on capital due to the finance of financial institutions' portfolios with less capital by ignoring the risk. Another reason of the banks' operations with high leverage ratios is to gain superiority against bank branches that have a fixed cost and against legal regulations by growing their balance sheet. Banks' increase of the leverage ratios and growth of balance sheets cause to the expectations about the rise of asset prices and this creates an asset bubble. Basel II regulates the minimum capital to risk weighted assets ratio which are in the banks' portfolios. However, this ratio is not a direct constraint on banks' leverage ratios. Extreme leverage ratios make the banks' balance sheets quite sensitive against possible losses.

Furthermore the shadow banking system became effective in the spread of crisis. The loan funding was granted by the non-banking financial institutions such as investment banks, hedge funds, money-market funds and financial companies. These are called as shadow banking system and the



biggest player is the investment banks. This system is not under the control of a supervisory and regulatory authority. In addition, in this banking system there is any obligation to share information with the public as the opportunity to share information is given to the company's own authority.

One of the premises of the crisis is that the rating agencies do not fulfill timely and sufficiently their obligations. As it is known, the rating agencies which give ratings to the banks and other financial institutions are financed by these banks and institutions either. In this structure, the objectivity of these rating agencies declines.

On the other hand the capital adequacy fulfilling efforts of the financial institutions increased the impact of the crisis. The decrease of the assets value caused a decline in the capital of financial institutions. In order to meet the capital adequacy ratio and restore confidence of the customers, financial institutions provided new capital from outside or decreased their leveraged positions. In other words, they narrowed the size of their balance sheet by selling the assets without looking to the price of them or by reducing the loans that they give. Coşkun et al. (2012) claim that the recent regulations about the capital standards made by the Basel Committee will improve the amount and quality of the financial institutions' capital.

### **5.2.1 Global Financial Crisis and Basel II Accord**

Basel II Accord became effective in the 2008 financial crisis or not? To answer this question it is important to take into consideration the two different views of the writers who accuse Basel II Accord for the financial crisis and who see Basel II Accord as an advantage to provide financial stability and to prevent future financial crisis.

### **5.2.1.1 Quality and Quantity of Banks' Capital Suggested by Basel II Accord**

The quality and quantity of banks' capital suggested by Basel II Accord is adequate or inadequate to prevent a financial crisis? There are two different approaches of writers to this question. In one side Onado (2008) claims that Basel II is not a regulation which increases the inadequate capital level in the banking sector and the CAR remains same with Basel I. Also, Blundell-Wignall and Atkinson (2010) claim that Basel II regulations does not include sufficient capital for the capital market activities of banks like securitization which is the main reason of global financial crisis. On the other side, there is an idea of Cannata and Quagliariello (2009). According to their view, the required capital level remains same because BIS aimed a progressive pass from Basel I to Basel II. Moreover, Basel II gives importance to the development of risk management policies by the banks and supervisory authorities for the financial stability. They suggest that effective internal controls are more important than large capital requirements. Benink and Kaufman (2008) state that capital requirement of many banks under Basel II is less than Basel I Accord's required capital which can be seen in the Quantitative Impact Studies. For example, QIS results show that the USA some largest banks' required capital decreased more than 50%. Cannata and Quagliariello (2009) know that it is true but it is an advantage for the regulators to give incentives to the banks for the implementation of more advanced risk measurement methods.

### **5.2.1.2 Relation Between Fair-Value Accounting and Implementation of Basel II Accord**

The relation between fair-value accounting which is an international accounting principle for trading books and implementation of Basel II Accord caused important losses in the intermediaries' portfolios or not? According to Zingales (2008), due to the fair-value assessment, banks increase their capital or decrease lending when there is a balance-sheet

losses. However, Cannata and Quagliariello (2009) said that any regulation which set a rule for the minimum capital will lead a problem like this. The vulnerability of banks' balance sheets resulted from the implementation of Basel II standards and the new accounting principles in the same time and it can be prevented by some prudential filters.

### **5.2.1.3 Pro-Cyclicality of Basel II Accord**

The pro-cyclicality of Basel II caused to the business cycle fluctuations or not? Blundell -Wignall and Atkinson (2010) support the idea that the leverage ratio is high in good times and low in bad time or it is easy to use counterparty credit policies in good times but it is difficult to use them in bad times. Moreover, Goodhart and Persaud (2008) assert that Basel II does not include a counter-cyclical control mechanism to prevent credit booms. Otherwise, Cannata and Quagliariello (2009) mention about the efforts done by the Basel Committee to decrease the effects of the pro-cyclicality such as the implementation of more favorable risk-weights for less cyclical borrowers like SMEs and development of capital buffers which can be used in bad times. However, they also claim that the pro-cyclicality is a feature of any capital regulation which reduce the likelihood of banks' defaults and provide greater coherence between capital and risk.

### **5.2.1.4 Independency of Rating Agencies**

The rating agencies which calculate the credit risk under the standardized approach are independent or not? Greenberg (2008) claims that while the main duty of the rating agencies is to be an independent referee, they originate securities for maximizing their own income. Cannata and Quagliariello (2009) affirm that the assessment of the credit risk by the rating agencies is a development in the risk management process even the ratings are incorrect and it can encourage banks to improve their internal rating methods. Moreover, they think that the regulations of the European

Commission done in 2008 such as the creation of common standards for the internal organization and methodologies of the rating agencies and development of the requirements for their registration will be beneficial to overcome these problems. Also, Phillips (2008) suggests that the ratings given by the rating agencies should be verified externally and relying solely on these agencies is a big mistake.

#### **5.2.1.5 Banks' Internal Measurement Models**

Banks' internal models to measure risks became effective in the financial crisis or not? According to Benink and Kaufman (2008), the main problem of Basel II is the use of internal models by the banks to determine the risk and the required capital because the underestimation of the required capital and risk by the banks is possible to maximize the return on equity.

Moreover, Cannata and Quagliariello (2009) suggest that the internal models should be controlled by the supervisory authorities and the methodologies should be developed. For instance banks' rating systems which only focus on the quantitative data should also include the qualitative information on borrowers. Also, the global financial crisis demonstrated the failure of other forecasting methodologies, not only the internal ratings based approach of Basel II.

#### **5.2.1.6 Regulatory Arbitrage**

Basel II caused to the regulatory arbitrage or not? Basel II is criticized that it caused to the regulatory arbitrage by giving some incentives to the banks to deconsolidate very risky exposures from their balance-sheets while converting some on-balance sheet items into off-balance sheet items, banks may decrease their capital reserves. Moreover Ökmen (2005) inserts that in the Basel accords, the on-balance sheet and off-balance sheet concepts are confused because on-balance-sheet assets and off-balance-

sheet liabilities and non-cash loans are evaluated in the same category and subjected to the same procedure in terms of capital requirements. Also, intermediaries did not give adequate importance to the liquidity and concentration risks. Also, Ökmen (2005) claims that by Basel accords, banks are given the right to move their assets to the low risk group for collecting more resources or to shift their assets to the zero risk groups for collecting infinite resources and the most important deficiency of Basel accords is to give opportunity of concealing capital insufficiencies by the capital arbitrage. Nevertheless, according to Cannata and Quagliariello (2009), it is fair to say that the guilty of the regulatory arbitrage is the Basel I Accord.

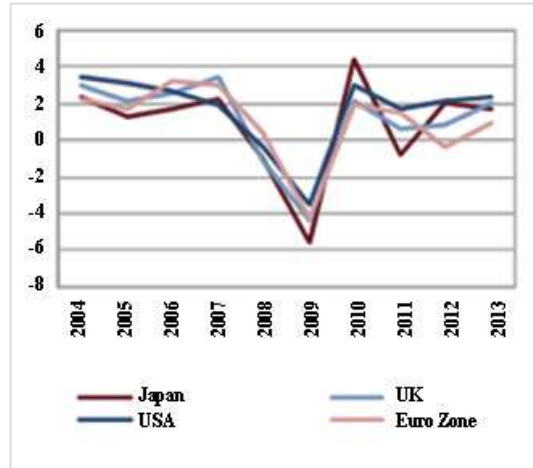
To conclude, in spite of the accusations about Basel II, Cannata and Quagliariello support the idea that Basel II Accord could not be effective in the sub-prime financial crisis because at that time, Basel II regulations were not valid in the United States and also the use of the regulations was very limited in Europe.

### **5.3 Post Financial Crisis Situation in the World**

The effects of global financial crisis are still continuing and the policies implemented by the developed countries give direction to the global economy. While the recent progresses of U.S.A economy affect positively the global economy, the financial problems and the political uncertainties of some EU countries makes harder to overcome the results of the global crisis. In developed countries, growth and unemployment rates is in a negative condition compared to the pre-crisis period. Moreover, because of the nested structure of the market, economic deterioration risk in the developing countries which have an economic relationship with EU countries increased. Low credit supply and domestic demand in developed countries, made the recovering process of the growing rates slower. Especially in the EU countries, increased budget deficits during the crisis became a public debt

problem and this made harder to carry out fiscal policies to promote growth in the related countries. Thus, the reducing growth rates of the developed countries are still continuing and international institutions updated their 2012-2013 growing forecasts negatively.

**Chart 5.1 Annual Growth Rates of Chosen Countries (%)**



Source: Türkiye Cumhuriyeti Merkez Bankası, May 2012, *Finansal İstikrar Raporu*, p. 1

Depending on the increased risks of EU countries, the credit risk in their banking sector also increased and the profitability indicators deteriorated. Thus, according to the results of the banks' lending trends survey made by AMD, EU banks are reluctant to give loans and they tightened the requirements for giving loans. This situation affects the credit growing negatively in EU countries and impedes the economic recovering process. Moreover, CBRT (2012) states that it may negatively affect the companies who have a credit relationship with these banks.

The deterioration of the credit quality of EU banks, difficulties related to the financing sources and the need for additional capital of the banks were created pressure on these banks for making smaller or re-shaping their balance sheets. CBRT (2012) claims that EU banks' rapid decrease of their assets may cause to negative consequences globally. In addition, the balance sheet reducing may affect asset prices and asset quality negatively

and it may cause to the deterioration of the fiscal activities by narrowing the real sectors credit channels. On the other hand, it is thought that this trend will decrease the debts of the non-banking sector in the mid-term and will also contribute to the financial stability.

Consequently, the post-crisis measures provided by the authorities of the developed countries provide some relief but the political uncertainties and the lack of permanent structural solutions affect the global economic performance negatively.

### **5.3.1 Balance Sheet Reduction Operations of International Banks and its Effects on Developing Countries**

Developed countries whose leverage ratios were reached very high levels before the global financial crisis, were caught to the economic crisis with a fragile balance sheet structure in which capital quality and ratios are low. In the post-crisis period, the banking system becomes subject to a great pressure for reducing the leverage rates and risk exposures by the global regulations about Basel III, resolution regimes and OTC derivative markets done by the institutions that have a systemic global importance. In the current situation, USA centered banks succeed to reduce their leverage ratios, however EU countries' banking sector is still behind the desired point because of the high debt level of European countries as well as their need of non-deposit borrowing. If the leverage ratio is defined as the ratio of assets to capital, there is two ways to reduce leverage rate. The first method is to increase the capital and the second method is to decrease assets. Although the first method –increasing the capital – is the more preferred and less harmful method for the developed countries, there are some negative opinions that the rise of the capital by banks is difficult in the current situation. In the second situation – reducing assets – it is predicted that the European banks will reduce the funds and credits provided to the developing countries in order to decrease their assets. This issue might affect the

resources transferred to the real economy and the growing rates. According to the Global Financial Stability Report of IMF (2012), the shrinkage of the EU banks' balance sheet is equal to 7% of their total assets and it means that the shrinkage will be more than 2 trillion Euros. On the other hand, it is predicted that the impact of this shrinkage on developing countries may change but the biggest impact will be experienced in the developing EU countries. According to this, EU members' developing countries will be faced with 4% decrease in their private loans. IMF predicts that this rate may 3% in developing countries who are not in the European Union such as Russia and Turkey. In addition, according to the IMF, the rates of Latin America and Asia will be less than 3%. On the other hand, the level of this effect will change due to the different fragile structures, volatile capital flows and the policies implemented by the countries. In this context, CBRT (2012) suggests that countries should have flexible economy policies for adapting to the changing conditions. Moreover, countries should create alternative funds to deepen their domestic market to be less affected from the foreign based balance-sheet shrinking policies and external shocks.

#### **5.4 Credit Rating Agencies**

Reaching the information in the capital market causes to loss of time for the market participants and loads high costs. As a result of this, correct, trustable and understandable analysis is needed by the market actors. Ratings affect the decisions of the investors. At the same time, the business activities of domestic investors, getting loans from other countries, bond tradings and projects which needs overseas credits are all affected from the ratings which are given by the credit rating agencies. Making investments to the countries which are at the level of investment is a rule in Europe and USA so the suppliers and demanders of funds are dependent to these ratings. Because of this reason, the entrance of the funds are blocked in the countries who are not among the countries rated at the level of investment such as Turkey. When these countries are rated at the level of investment, there will



be low cost source flow to these countries. Ratings affect both the cost of borrowing and the entrance of the foreign funds to the country.

Rating agencies generate their revenues by issuing bonds more than rating activities that they are making. This issue causes to some criticisms about the rating agencies that they serve in the interest of international capital. Credit rating agencies use some qualitative and quantitative criterias while determining international institutions' ratings. These criterias include economical evaluations such as countries' economical flexibility, growth potential and economical stability, debt ratios and capacity to pay and political evaluations such as countries' political stability, foreign policy developments, risks in the political agenda and the independency degree of the countries' Central banks. The information shared with third parties about the rated company is limited to publicly available information. This issue causes to the criticisms about the transparency of the rating agencies.

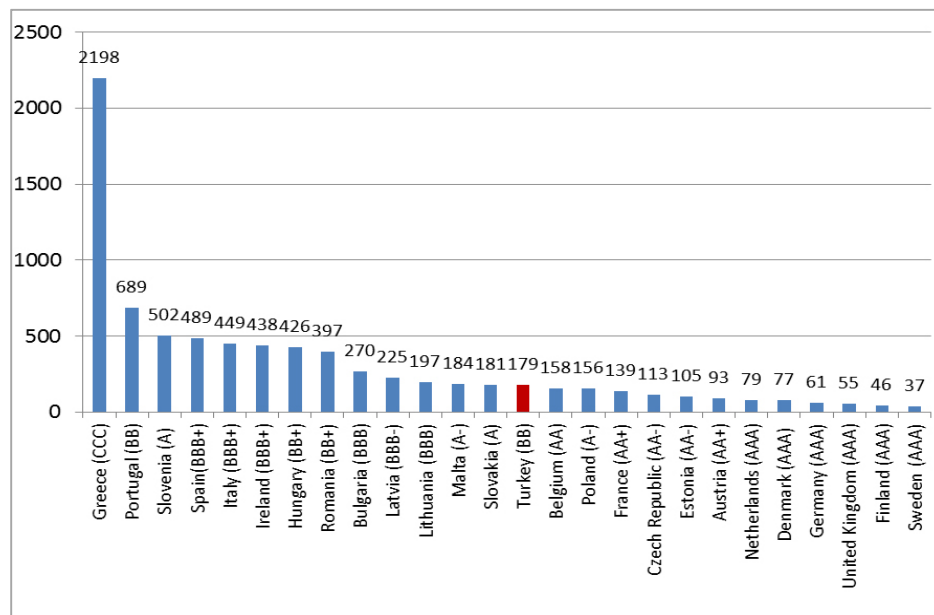
Sovereign credit rating refers to the level of investment of a country. After taking low ratings in 90's, Turkey could not use low cost loans in the international market so Turkey applied to internal debts and this situation affected the economy negatively. While comparing some countries' growth rates, existing stock of external debt and inflation data, it is observed that the ratings have not a certain standard. The countries such as Ireland, Spain and Iceland whose public debts are higher than Turkey and growth rates are low are given the same rating with Turkey. Although several countries' economic indicators are terrible, the ratings are high. For example, the rating of Iceland is higher than Turkey even Iceland's public debt to GDP ratio was 98.8% in 2011 and its growth rate was 3.1% while in Turkey, the public debt to GDP ratio was 39.4% and the growth rate was 8.5%. The rating agencies who assert that Turkey has a high current account deficit contradict with themselves by giving higher rating to Iceland whose current account deficit is 8%. This inconsistency among the credit rating agencies

shows that analysts of these agencies have subjective decisions and the credibility of the rating agencies decrease.

### 5.4.1 Credit Default Swaps and Credit Ratings

Criticisms about the credit rating agencies which were seen as the reason of global financial crisis has been renewed after the debt crisis in the Euro zone. There is a perception that credit rating agencies systematically affect the crisis by making late and sudden changes in the countries' ratings. After these negative impressions about the credit rating agencies, the importance of CDS which give actual credit ratings increased. CDS is a credit derivative instrument which protects the creditor against the non-payment risk of the loan.

**Chart 5.2 Annual CDS Spreads (2012)**



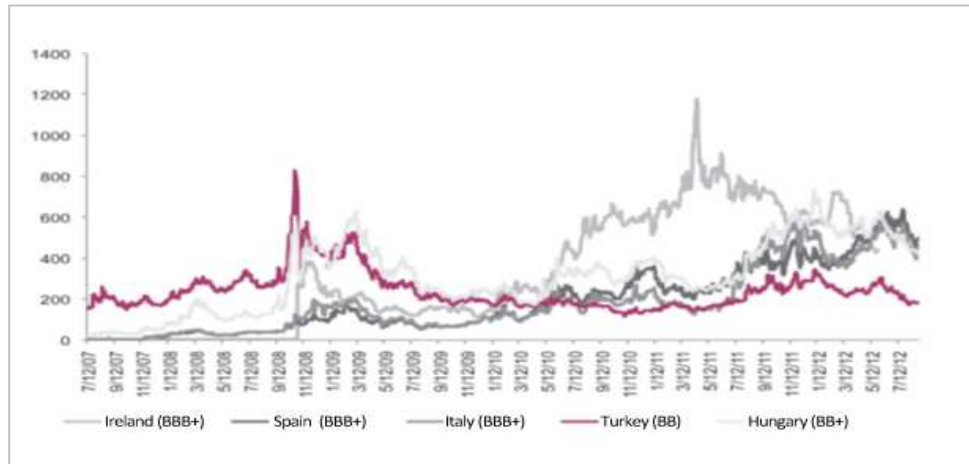
Karagöl, T. E. & İstiklal Mıhçıokur Ü. 2012, *Kredi Derecelendirme Kuruluşları: Alternatif Araştırmalar*, p.22

On the other hand, CDS premium is the fee given to undertake the credit risk. This ratio shows the risk premium which should be paid for the country risk. The high risk premium means the credibility of country is low. There is a high difference between the ratings given by the credit rating

agencies and CDS premiums. While economic, financial and political stability of Turkey is accepted by the markets, this credibility is not converted into high ratings by the credit rating agencies. In the countries in which the financial conditions improved, CDS premiums decreases but the ratings are not increased by the credit rating agencies. For example, countries such as Ireland, Slovenia, Belgium whose ratings are A and BBB+, have more risk premium than Turkey whose credit rating is in the non-investible degree.

While evaluating the value of CDS's in the long term, there are important differences between pre and post crisis period in the countries which are affected from the European debt crisis. In Chart 5.3, the CDS spreads of Turkey, Ireland, Spain, Italy and Hungary were quite low before the global financial crisis. However, during the crisis period in 2008, the spreads reach to very high levels. After the crisis, in 2009, the CDS spreads of Turkey returned to the level of pre crisis but other countries' CDS spreads stayed at high levels.

**Chart 5.3 CDS Spreads Trend of Chosen Countries**



Karagöl, T. E. & İstiklal Mihçioğur Ü. 2012, *Kredi Derecelendirme Kuruluşları: Alternatif Araştırmalar*, p.23.

Credit ratings are not obligatory in Turkey so the credit rating culture has not been formed yet. From this perspective, Basel accords will contribute to the creation of this culture. Turkey should make some regulations for the national rating agencies to provide ratings compatible with the international standards.

The latest version of Basel III Accord does not include all of the decisions taken in G-20 summit to prevent the difficulties related to the compliance with regulations. The decisions and applications of G-20 summit are concrete examples of the works aiming to solve the problems about the credit rating agencies. In these summits, it is emphasized that the audit, transparency and service quality of the credit rating agencies should be increased. On the other hand, it is emphasized that the investors and developing countries should act independently from the ratings given by the credit rating agencies.

### **5.5 Predictions Related to Basel III Accord**

Following the global financial crisis, Basel Committee on Banking Supervision revealed Basel III regulations to improve Basel II Accord and strengthen banking sector's risk management, supervisory structure and financial regulations. As mentioned before, Basel III Accord contains some new implementation policies such as increasing quantitatively the minimum capital, making some changes in the quality of the capital, creation of a new non risk-based minimum capital requirement, the ability of increasing or decreasing the capital requirement according to the economic cycle and some regulations about liquidity ratios.

In Table 5.2, the differences between Basel II and Basel III capital adequacy ratios can be seen. The common equity ratio will be raised gradually to 7%, Tier 1 capital to 8,5% and the total regulatory capital to 10,5%.

**Table 5.2 Strengthened Capital Framework: Basel II to Basel III**

In percentage of risk-weighted assets	Capital requirements							Additional macro prudential overlay	
	Common Equity			Tier 1 capital		Total capital		Counter cyclical buffer	Additional loss absorbing capacity for SIFIs
	Minimum	Conservation buffer	Required	Minimum	Required	Minimum	Required	Range	
<b>Basel II</b>	2			4		8			
<b>Mem:</b>	Equivalent to around 1% for an average international bank under the new definition			Equivalent to around 2% for an average international bank under the new definition					
<b>Basel III</b>	4,5	2,5	7	6	8,5	8	10,5	0-2.5	Capital surcharge for SIFIs

Source: Bank for International Settlements

While Basel III has not implemented yet, there are some predictions about it. Blundell - Wignall and Atkinson (2010) criticize Basel III Accord because it does not consist of a regulatory framework for the shadow banking. There should be a single regulator for the whole financial sector. Banks are highly regulated by the bank regulators but insurance companies or hedge funds are lightly regulated. They claim that banks will continue to transform their risk buckets to derivatives to decrease their capital reserves. For instance, banks will lead the risk buckets to the insurance sector because the insurance sector is not well regulated. Also, Fabiani (2010) asserts that despite the shadow banking was a big problem of the global financial crisis, there is not a regulation in Basel III for the non-banking financial institutions like insurance companies and investment banks. While there is not a regulation about this issue, shadow banking remains as an advantage for risk taking. Basel III which aims to prevent future crisis did not take into consideration the contagion risk because a crisis in the non-banking financial sector may affect the whole banking system. Moreover, according to Blundell - Wignall and Atkinson (2010) the leverage ratio should be a

main capital control tool and it should not be used as a backstop. This means that BIS should determine the leverage ratio at a level which banks could not minimize their capital by the capital arbitrage. Basel III Accord does not include a regulation like this.

KPMG (2011) claims that the competition between banks will decrease due to Basel III because it will be difficult for weaker banks to provide the required capital. For instance, banks which have a high net stable funding ratio will determine the assets' market price so weaker banks could not compete with them. Also, the leverage ratio will decrease lending and the liquidity coverage ratio will affect negatively the profitability because banks will keep more liquid and low-yielding assets to fulfill the liquidity coverage ratio. They assert that the capacity of banking activity may decrease because of the Basel III suggested capital and liquidity requirements. Moreover if countries apply Basel III regulations according to their own jurisdictions as they did in Basel I and Basel II, the international regulatory arbitrage will continue to damage the global financial stability.

Fabiani (2010) asserts that there are doubts in the market such as the credit access will be difficult for the SMEs and start-up businesses after the implementation of Basel III because smaller banks will tighten their credit conditions. Also, he said that the effect of Basel III on economic growth in the long-run is not obvious. There are two studies which are announced by the Basel Committee and Institute of International Finance. According to the study of the Basel Committee, with the effects of capital and liquidity requirements, the growth rate will be 0,04% above the expected trend in the first four and a half years and the rate will be 0,02% more than the expected trend in the following years. When this time period decreases into two years, the decline related to the GDP increases from 0,19% to 0,22%. In contrast, when the implementation period increases to six years, the GDP decline decreases. On the other hand, Institute of International Finance

study demonstrates that the increase on the capital requirements will reduce the real GDP growth annually 0.6% in the first four and a half years.

On the other hand, Coşkun et al. (2012) claim that Basel III regulations will bring some costs too. According to the predictions, the implementation of Basel III will cause an increase in the banks' credit spreads as a result of the high capital adequacy ratios. In order to meet this requirement, financial institutions should increase their credit spreads approximately 15 basis points for the common equity ratio which is 4,5% and Tier 1 capital ratio which is 8% till the end of 2015. Moreover, it is assumed that because of the 7% common equity ratio and 8,5% Tier 1 capital ratio which will be implemented in 2019, the credit spreads will increase 50 basis points. As Matai (2010) points out in the whole European banking system, the need is 1,5 trillion USD in order to provide the capital and liquidity requirements of Basel III. In the USA banking system, the issue is not different from Europe.

## 6. CONCLUSION

There is no doubt that as a result of the technological improvements, globalization became the most important determining component and the field which is the most affected by the globalization is the financial market. The globalization process contributed to the growth by combining national and international markets. Moreover, it rapidly increased the interaction between the real sector and financial market and by this way economic structure became more sensitive to the risks.

Risk management is one of the most important issue of the banking sector because it is the most deep-rooted and widespread agent of the financial market. Banking sector may provide significant contributions to the economic development by the effective risk management but in the opposite case it may cause costly crisis which will spread all over the world. From this perspective, a common global language about risk management has a vital importance for the whole financial market. As a result of the insufficiencies of the traditional studies for preventing risk, Basel Committee announced Basel I Accord in 1988, Basel II Accord in 2004, Basel 2.5 Accord in 2009 and finally Basel III Accord in 2010. Each accord is created in order to resolve the deficiencies of the previous one.

Basel I Accord has various positive features: it is easy to apply, creates a fair competition environment and it gives place to the definition of capital adequacy for the first time. Despite these positive features, Basel I Accord left its place to Basel II Accord because Basel I consists of only five different risk weights and shows the assets which have different risks in the same risk group. Moreover, Basel I does not include operational risks and it does not differentiate the borrowers while calculating capital requirement



and the methods used by Basel I Accord in the measurement of credit and market risks could not measure banking risks in a realistic way.

Basel II Accord meets important needs of the banking sector and financial market by increasing transparency with market discipline based on the public information and minimizing asymmetric information while describing the banking risks in detail, offering flexible and comprehensive methods to measure them, including operational risk capital requirements and attaching great importance to the supervision of banks. However, after the crisis occurred in 2008, it became a necessity to change the capital quality, increase the capital quantity, create capital buffers, apply a leverage ratio and regulate the calculations about minimum liquidity ratio, trading accounts and counterparty credit risk. Therefore, these needs caused to the creation of Basel 2.5 and then Basel III Accord.

In this study, it can be seen that there are both positive and negative predictions about Basel III, although it was not implemented yet. For instance, it is predicted that the uncertainties of banking sector will be eliminated and the systematic risk will be reduced by Basel III regulations. On the other hand it is criticized that small banks will be faced with some difficulties on fulfilling the obligations on capital and liquidity so competition will reduce. Moreover, there are criticisms like bank funds will move towards government debt instruments that have high ratings, the companies with lower rating will have difficulties in obtaining funds and Basel III does not contain regulations for the shadow banking system which was one of the main reasons of the financial crisis.

From the perspective of Turkey, after the acceptance of Basel I Accord in 1988, a gradual transition process was followed for Basel II and Turkey started to implement Basel II Accord in July 2012. The effective implementation of this accord is important for its contributions to the financial stability but it is also important for the harmonization efforts to the

EU. Moreover, the flexibilities provided in the accord should be implemented in the most appropriate way by the countries because if the provided flexibilities are not chosen according to the conditions of the country, the regulations may impose a burden which is disproportional with the risks or they may allow to the concealing of risks' true level. In Turkey, the final shape of the accord was given after the adaptation of these flexibilities. Although the global financial crisis, Turkish banking sector is protected its strength structure with the precautions taken. While comparing with other countries, it is possible to say that the capital adequacy ratio and equity to total assets ratio of Turkish banking sector is among the countries that have highest ratios. For these reasons, it is predicted that Turkey will not be faced with important problems about the compliance process of Basel III Accord.

There are some debates about the negative effects of Basel II in 2008 financial crisis. Nevertheless, despite its shortcomings, Basel II Accord could not be one of the reasons of the crisis because when the crisis arises, Basel II was not enforced in USA and had a limited field of application in EU. However the deficiencies of Basel I Accord may be one of the reasons of the crisis because it has been applied in almost every country when the crisis arises. To conclude, although there are some negative views about Basel accords, it is not possible to ignore its contributions to the sector. Moreover, non-implementation of the accord will be more costly than implementation of it.

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